Paper
THE JOURNAL

Nov. 2, 1950

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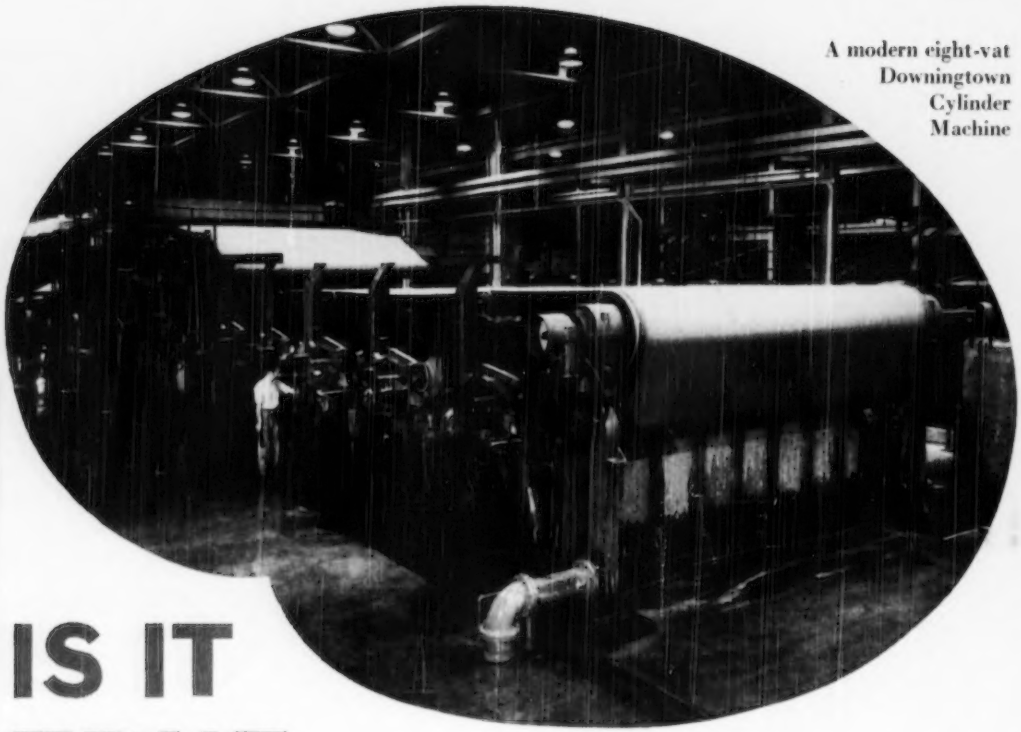

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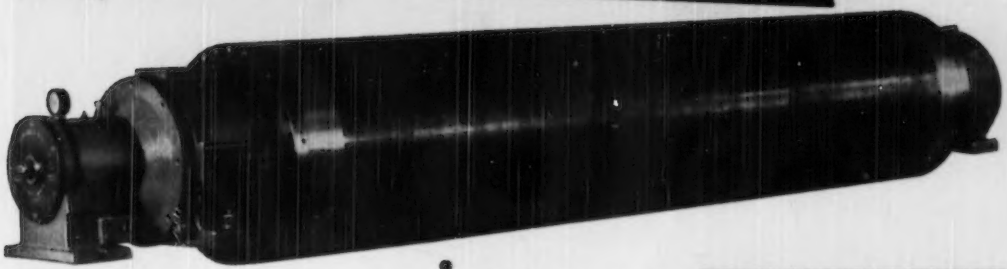

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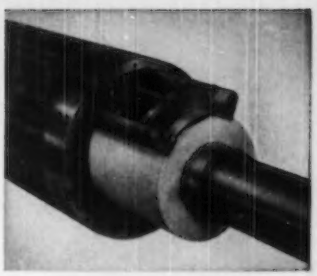

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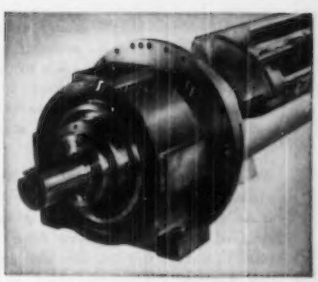

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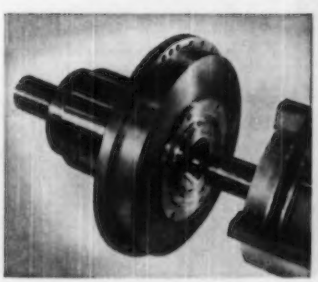

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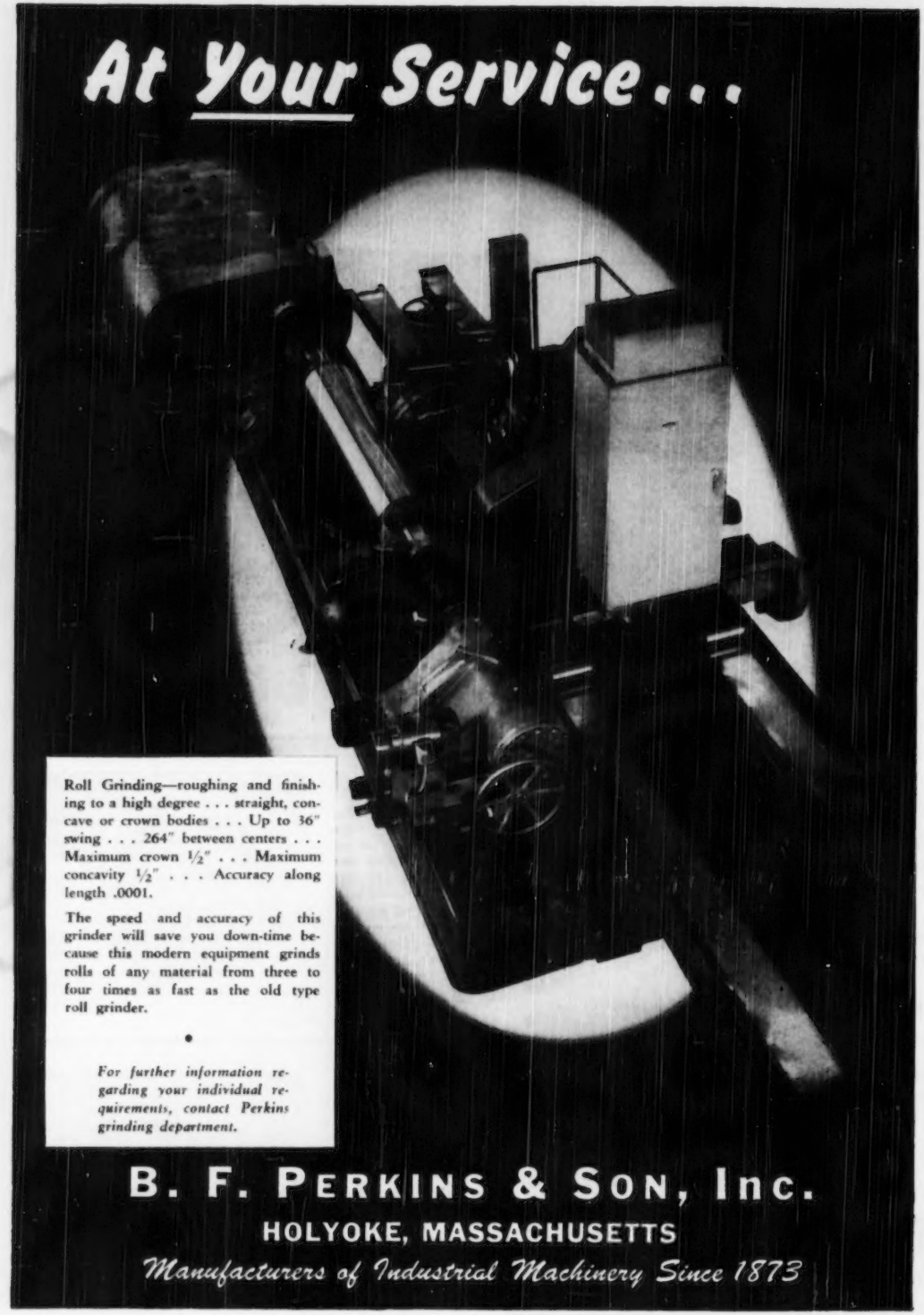

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Paper TRADE JOURNAL

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PUBLISHED EVERY THURSDAY

LOCKWOOD TRADE JOURNAL CO., INC., 15 West Forty-Seventh Street, New York 19

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Vol. 131 **NOVEMBER 2, 1950** **NO. 17**

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DATES TO REMEMBER

NOVEMBER 3-4: Society of Rheology, Annual Meeting, Hotel New Yorker, N. Y.

NOVEMBER 9-10: National Paperboard Assn., Annual Meeting, Waldorf-Astoria, N. Y.

NOVEMBER 27—DECEMBER 2: 19th National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, N. Y.

DECEMBER 3-6: American Institute of Chemical Engineers, Neil House and Deshler-Wallick Hotel, Columbus, Ohio.

JANUARY 15-18, 1951: Plant Maintenance Show & Conference, Public Auditorium, Cleveland, Ohio.

JANUARY 24-26: Canadian Pulp & Paper Assn., Mount Royal Hotel, Montreal, Que.

FEBRUARY 19-22: Technical Assn. of Pulp & Paper Industry, Annual Meeting, Hotel Commodore, N. Y. C.

FEBRUARY 19-22: American Paper & Pulp Assn., Annual Meeting, Waldorf-Astoria Hotel, N. Y. C.

NEXT WEEK

Number VII in the corrosion series. "The Use of Nickel Containing Alloys in the Pulp & Paper Industry", by H. O. Teeple, International Nickel Co., New York, N. Y. Since a high percentage of the non-corrosive alloys contain nickel, this article constitutes a very comprehensive survey of the use of such alloys as monel, inconel, ni-resist, Hastelloy, as well as the various types of stainless steels. There is too much valuable information here to be absorbed at one time, so it will be divided into three installments.

An excellent contribution to the subject of labor relations is contained in "The Rediscovery in Labor Relations" by J. O. Wells, Personnel Director, Ecusta Paper Co.

Another article in our series on instrumentation containing valuable information on the control of level and flow in tanks; is "Ball Float Type Liquid Level Controllers" by E. W. Horvick, Application Engineer, Brown Instruments Div., Minneapolis-Honeywell Co.

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Single Copy 15c

U. S. $5.00 per year

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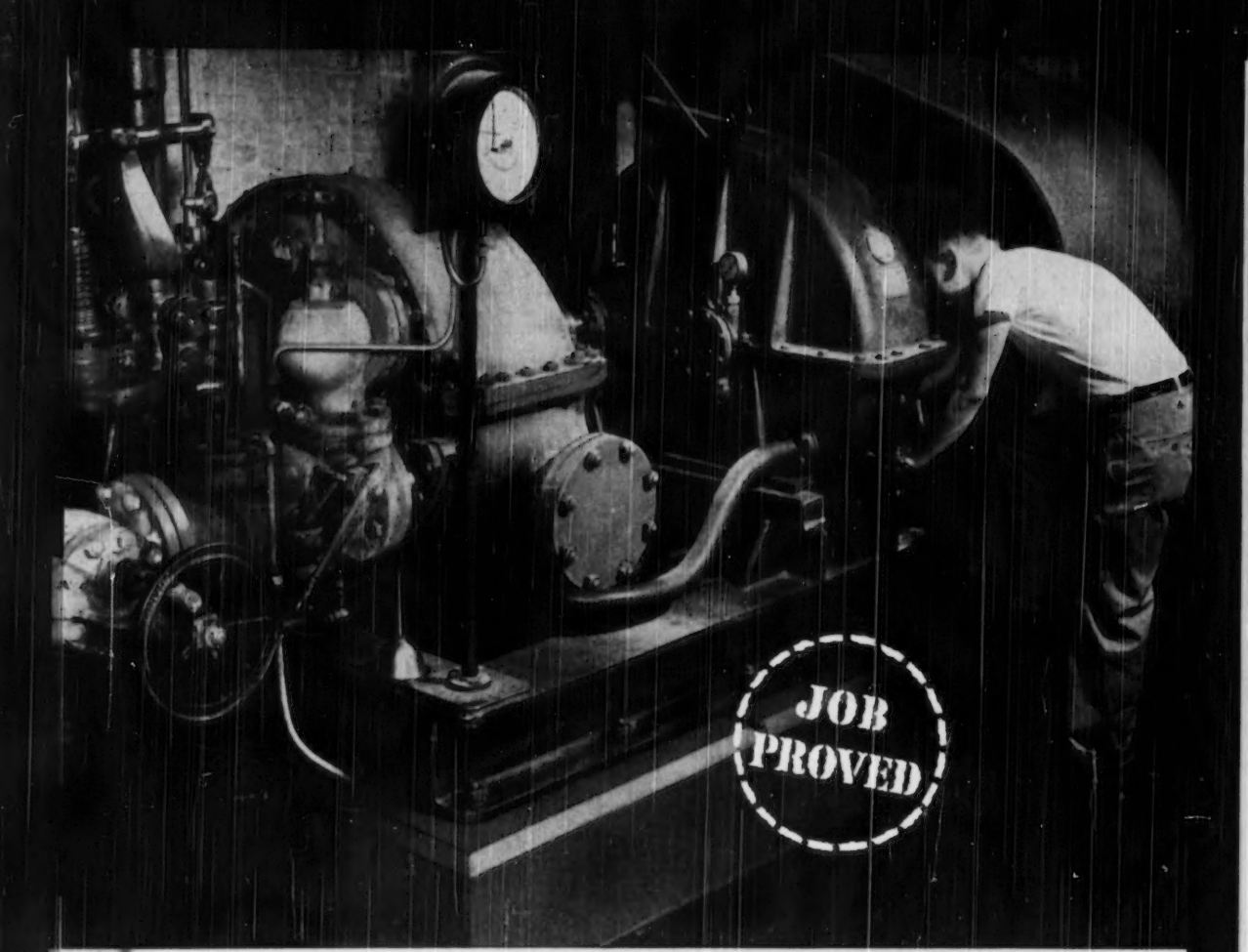
All Other Countries $20.00 per year

Entered as Second Class matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co. Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U.S.A. Copyright 1950 by Lockwood Trade Journal Co., Inc. PAPER established Feb. 17, 1899, combined with PAPER TRADE JOURNAL, Nov. 16, 1899. PAPER established Sept. 21, 1910, combined with PAPER TRADE JOURNAL, February 19, 1926. All rights to the above titles reserved. Contents of PAPER TRADE JOURNAL, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. PAPER TRADE JOURNAL is indexed in Industrial Arts Index and Engineering Index. Also publisher LOCKWOOD'S Annual DIRECTORY OF THE PAPER AND ALLIED TRADES.



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In a large paper mill, eight steam turbines drive paper machines and pumps, and generate power for ventilating equipment. Ten years ago the mill began lubricating these turbines with a "Job Proved" Sun oil. They gave unfailing service with remarkably low oil and maintenance costs.

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The Sunvis "900" Oils have fully justified this confidence, saving the mill 25% or more on lubrication costs. Furthermore, the papermaker knows his equipment—running or idle—is fully protected from rust and corrosion.

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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 1, 1950.

The pinpoint lags in general business noted by economists are not reflected in paper and board demand. None is visible, even to the most scrutinizing. Diverging opinions exist within the trade as to when and how a dip in demand would be created.

Summary of Business Conditions

Based on statistics for September and the first half of October, the Federal Reserve reported business and consumer demand for goods less active after mid-September. Industrial activity, employment and payrolls increased somewhat further, following August's sharp advance. A further small increase in the Board's seasonally-adjusted index over September's 211 is likely as a result, chiefly, of expanded output of steel and of producers' durable goods and military equipment. Automobile production continued close to the high level of recent months. Consumer credit regulations which became effective on September 18 were tightened on October 16, and housing credit restrictions were made effective.

Seasonal Buying Is Less

Consumer buying showed less than the usual seasonal increase in September and early October over the peak rates reached during the summer, volume-wise. Purchases of durables continued above the high levels of the year's first half. Distributor stocks of most goods increased further in this period following a reduction in July. At department stores, value of stocks by the end of September was about one-fifth above the relatively low level reached a year ago.

D & B Reports

Following the stiffening of consumer credit terms effected in mid-October, total retail trade stood at about the level of the preceding week, only slightly above the level of 1949's week, Dun and Bradstreet reported for the week ended October 25. Decline in demand for hard goods continued, though total dollar volume of such sales exceeded the level of a year ago.

As many retailers strove to reduce swollen inventories, a moderate drop in total dollar volume of wholesale orders was noted. It continued to be somewhat over 1949's level. A perceptible lull in activity in wholesale apparel trade was noted. Ordering was generally confined to immediate needs. Wholesale buyers of consumer durables purchased slightly more than in both the previous week and the 1949 week.

Purchasing Agents Note Easing

Slowdown in new order book was again noted by the NAPA. September's report contained the first move in this direction. Future production commitments were reported by only 33 percent of the purchasing men, compared with August's top of 80. Some 52 percent held their high level of bookings, while 15 reported some liquidation of back-orders.

Business Gripes Grow

Increasing space in the press is being devoted to business gripes over the knock-out blow dealt to *durables* and housing by consumer credit regulations and threats of cuts in civilian use of vital metals. The bloom has been dropped from post-Korean business by the Administration's heavy club, says one columnist. Reports of "things being tough all over" are coupled with the belief that civilian business is being cut back faster than defense buying seems to justify.

September Production One of Big Five

Albeit a short month, September was one of the big five months in history. Preliminary statistics released by APPA set industry production at 2,022,000. The overall daily average production was .427% over the record-breaking August figure, 12.7% over 1949's September.

Orders received for the paper group were roughly equal to this high volume. As a consequence, the high backlog of unshipped orders remained steady through the month. With relatively minor differences, this condition prevailed throughout the industry.

It is not entirely clear at the moment of writing, said Dr. Louis T. Stevenson, the Association's economist, whether this steadiness in the backlog of orders, as contrasted with the great increases of August, resulted from a decline in the placing of orders or a refusal of many individual companies to commit their production far in advance at this time.

Industry Opinion

In the face of such nation-wide reports, sustained demand, undiminished backlogs, and depleted consumer stocks, industry opinion holds that only cancellations could effect the dip in consumer demand. The divergence of opinion which exists is partly accounted for by the varying market conditions of the 11 associated industries.

In containers and unbleached kraft wrapping and sack paper, it is held that such a lag may not come at all, since military requirements already are heavy. A slight easing of civilian pressure is not unlikely. Ultimately, it is conceded, defense buying will take up any slack created by restrictions.

Demand continues extremely heavy for paperboards. Prices for all boxboards and kraft liners were advanced again $7.50 to $10.

No easing is seen in book papers. Some dealers report printers buying for inventory, others that customers have large jobs waiting for stock. Still others note a consumer hesitancy to declare an end use lest the mills proportion deliveries.

Market Briefs

Newsprint Price.—Effective November 1, the New York price for newsprint paper, delivered ports, varies between $100 and $110. To press time, five mills had announced rises of $6.00 a ton to $106 (Abitibi, Bowater, Canadian International, Price Bros., St. Lawrence. Abitibi's earlier announcement of $10 was followed by a statement that they would meet the $6.00 increase of International, though they did not believe it adequately meets increasing costs.) Four mills named $10 rises to $110, Consolidated and Great Lakes to be effective November 1, Powell River, October 16, Inland Empire (U. S.) on October 14. Output of still other Canadian mills will be automatically lifted without announcement. Contract prices are bound to the average of three mills which have already announced a $6 rise. Mersey Co. has informed its U. S. customers of an unchanged price for the remainder of 1950. To press time, U. S. producers had taken no action on their price of $100, contract tonnage, with the exception of Inland Empire's boost to $110 on October 14.

Finnish Pulp Mills.—Though more than a week has elapsed since the sawmills workers returned to work, machinery and repair men are still negotiating. Optimism runs high that within a few days these men will be back and the pulp mills in operation again.

Waste Papers.—Prices of high grades and krafts are sustained at earlier levels with wanted lots moving at premium prices. Low bulkies are strong in price despite heavy collections. Activity at board mills continues to bolster demand and to keep this market strong.

Cotton Cuttings.—Mill opposition to rising costs of white shirts and other wanted grades is said to amount to a "mild strike" in New England. The spectre of price controls is not affecting price, it is reported. Available quantities are insufficient, and the mills are bidding against each other, the dealers state. Prices of white and unbleached cuttings at the Philadelphia QM Depot showed a two-cent increase to a high of 18.866, a low of 17.8305.

Bagging.— Though the market is bullish as a partial result of India-Pakistan raw materials arguments and doubling of the export duty on burlap, buying of old bagging is said to be cautious. Papermakers are buying heavily of scrap burlap.

The new burlap duties will have little effect on the market here, Dept. of Commerce men state. The U. S. market responds primarily to supply and demand and not to the price in India.

Paperboard Production (Tons)*

	Oct. 21 1950	Oct. 14 1950	Oct. 22 1949
Production	235,388	237,498	206,400
New Orders	196,950	231,419	195,662
Unfilled Orders	715,451	752,556	411,834

Source: NPA.

In the Black-Clawson tradition

Down the decades the most modern and most successful board machines have been those bearing the Black-Clawson name-plate. The 8-cylinder machine here shown carries on that enviable Black-Clawson tradition.

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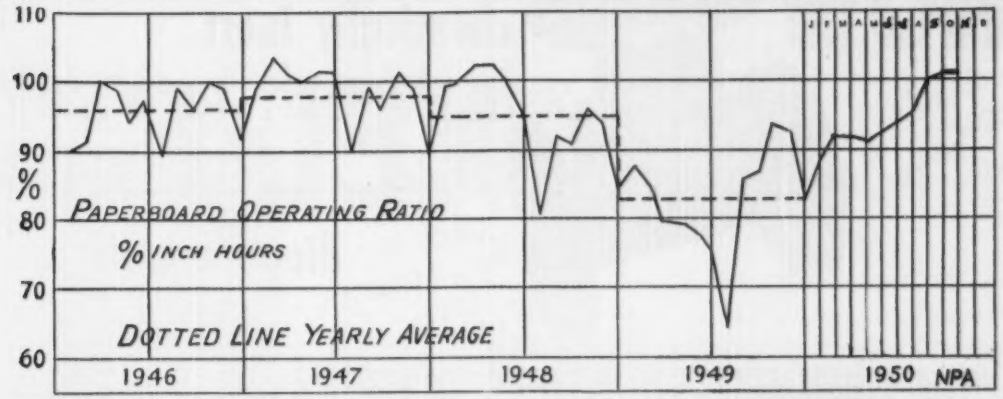

Source	Production	Oct. 21, '50	Sept. 23, '50	Oct. 22, '49
		WEEK ENDING		
APPA	Paper Production percent 6-day Capacity	107.3	106.8	101.1
	Unbl. Kraft Paper Production percent	101.5	95.7	84.2
NPA	Paperboard Operating Ratio percent inch hours	101.0	101.0	94.0
		Sept. 1950	**August 1950**	**Sept. 1949**
APPA	Paper Production* (Except Newsprint and Building Papers) ....Tons	766,000	833,805	699,796
	New Orders ....Tons	820,000	972,914	764,640
	Unfilled Orders ....Tons	932,000	886,969	463,553
	Shipments ....Tons	772,000	842,338	706,642
		Sept. 1950	**August 1950‡**	**Sept. 1949**
NPA	Paperboard Production ....Tons	877,945	1,130,242	833,800
	New Orders ....Tons	872,012	1,365,968	873,002
	Unfilled Orders ....Tons	714,877	729,058	360,900
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Manufactures Total Index	220	207	181
	Durable Mfg. Index	248	237	194
	Nondurable Mfg. Index	197	182	170
	Chemical Products Index	266	257	226
	Mfg. Food Products Index	188	177	189
	Printing and Publishing Index	161	150	143
ODC	Magazine Advg.-Printer's Ink Index	316	321	284
	Retail Sales Combined Adjusted Index	345.8	354.0	300.5
	Drug Index	225.9	221.2	223.9
	General Merchandise Group Index	347.3	369.2	294.5
	Grocery and Combination Index	404.2	410.9	360.8
	Prices Index			
BLS	Consumers Price Index[1]	173.0	172.5	168.8
	Wholesale all Commodities[2]	166.3	162.9	152.9
	Wholesale Foods[2]	174.6	171.4	160.6
	Commodities other than Farm Products and Foods[2]	155.3	151.5	145.0
	Wholesale Pulp and Paper[2]	163.9	159.9	156.8
	Purchasing Power of Dollar, Consumers Prices[1]	57.8	58.0	59.2
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	367.2	361.9	323.0
	Unemployment Compensation Initial Claims (M)	641	971	1,252
	Miscellaneous Carloadings–Thousands of Cars	1,574	1,433	1,365
	Electric Output (Million KW hr.)	33,874	31,626	29,551
PTJ	Average 32 P & P Common Stocks as of Oct. 24	$34.04	$33.50	$29.10
	Average Indicated Dividends Common Stocks as of Oct. 24	$ 2.43	$ 2.43	$ 2.18

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
* For details see APPA Monthly Statistical Summary—August 1950 Estimated Figures
° Latest Month Available on Request
‡ For Five Weeks

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Diaphragm absolutely isolates working parts from fluid . . . There's no "if" about the way a continuous, one-piece diaphragm seals off the working parts from fluids; no perforation or puncture in the diaphragm where fluid or gas can possibly leak by the valve spindle. No sticking, clogging or corroding of working parts. Valve lubricant cannot contaminate the fluid in the line.

Diaphragm, body and lining materials to meet particular conditions . . . Bodies stocked in cast iron, malleable iron, stainless steel, bronze and aluminum: other materials on special orders. Valve bodies lined with lead, glass, natural rubber or neoprene. Diaphragm materials of natural rubber or synthetics.

Diaphragm is only part that normally wears and needs replacement . . . Depending on the type of service, it may last for years, particularly since the compressor and finger plate combine to support the diaphragm in all positions. The diaphragm can be replaced quickly without removing valve from line. No refacing or reseating.

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Paper TRADE JOURNAL

N P T A Convention

October 23-25, Stevens Hotel, Chicago

W. B. Leathers
Executive Secretary

Government controls, allocations, inflation and shortages were the major problems probed by speakers and delegates to the semi-annual National Paper Trades Assn. convention, held October 23-25 in Chicago's Stevens Hotel.

The Korean crisis generated keen interest and all sessions were well attended. The program was laid out carefully to cover all aspects of the changing business situation, according to W. G. Leathers, executive secretary.

More than 550 delegates — including merchants, millmen and converters from every part of the country—were attracted to the convention to exchange ideas and learn the latest business developments.

Attendance this year was about normal, Mr. Leathers said. Exhibitors numbered 81 as compared to 80 in 1949. All exhibits were displayed on the fifth and sixth floors of the hotel. Considerable interest was shown by representatives who streamed through the corridors visiting various exhibit rooms.

Displays included the newest paper products items for household and industrial uses. The emphasis on wartime products was revealed by many waterproof and greaseproof items designed for military usage.

Seven prominent speakers representing the industry and government were featured Tuesday and Wednesday of the three-day convention, ably conducted by L. S. Pollock, NPTA president.

Controls?

The question of controls and their effect on business was reviewed by George H. Mead, honorary chairman of the board of the Mead Corp., in his talk before a capacity audience at 10 a.m., October 24.

Mr. Mead, a member of the Economic Advisory Council in Washington, D. C., told delegates that controls were the only answer to spiraling inflation.

"The danger of inflation—not Russia —is the greatest menace facing this nation today," he declared. "And rising wages and prices are more destructive than controls and growing socialization."

He explained that prices have risen sharply since the outbreak of war in Korea. In the face of this situation, controls are necessary for our national defense, he said.

"If prices continue to increase, wages are bound to rise," Mr. Mead, a former member of the National Labor Board, declared. "I think both prices and wages must be stabilized."

Businessmen can set up voluntary controls but government must be the "final arbiter." Mr. Mead added that his years of experience with government agencies has convinced him that the nation's business leaders exert tremendous influence in drawing up regulations.

"One of the reasons I'm wholeheartedly for controls is that it forces businessmen to go to Washington. The capital is the only city where these matters can be handled properly."

He said labor also must take the same attitude and work in cooperation with the administration. Labor leaders are just as fearful of inflation as management.

Mr. Mead felt a third world war could be avoided by adequate military and economic preparations.

"Russia has never been a warlike nation except to defend its own country," he said in reference to past Russian history. "But the risk is too great to overlook the vital responsibilities of preparedness.

"Mobilization is going to take the best efforts of all businessmen and every intelligent citizen. The paper industry should support both Secretary of Commerce Charles Sawyer and Stuart Symington, chairman of the National Resources Board. Both men are well qualified for their great responsibilities."

SPEAKERS' TABLE AT OPENING SESSION

Left to right: W. G. Leathers, NPTA executive secretary; Harold E. Holman, chief, Forest Products Division, National Production Authority; George H. Mead, honorary chairman of Board of Mead Corp.; L. S. Pollock NPTA president; E. P. Magel, vice-president in charge of fine paper division, and R. E. Knox, vice-president for wrapping paper division.

The NPTA Board of Directors, which met Monday evening, October 23.

When consulted by Secretary Sawyer at the outbreak of the Korean hostilities, Mr. Mead said he advised "we put controls on everything — tomorrow morning." This attitude, he admitted was not favored by other members of the advisory council.

Mr. Mead said the American people were vague as to the meaning of preparedness and he criticized attacks directed at President Truman.

"The President's job is the toughest one ever conceived, and he should command the loyalty and respect of the entire population." A Republican, Mr. Mead stressed that partisan politics must be eliminated in critical times.

During his talk, the audience rose in observance of one minute of silence in conjunction with the Crusade for Freedom campaign which included ringing bells in Berlin, Germany, and other countries at 11 a.m. on United Nations Day, October 24.

Mobilization

Harold E. Holman, chief, Forest Products Division, National Production Authority, Washington, D.C., who followed Mr. Mead on the lecture platform, also underlined the issue of controls.

"What controls will be applied will depend in a large measure upon the impact military requirements have on production and distribution capacities, all our effort will be directed to meet defense and essential civilian requirements."

Mr. Holman outlined recent action taken by the government in mobilizing industry for meeting the current crisis. "The goal is national security, controls and allocations merely are means of reaching that desired end."

In analyzing the job to be done, the speaker emphasized the staggering costs for our defense requirements, which include a military force of three million men.

"Equipping these men is a big job," he warned. "And it will place an additional load on producers of food and other materials required for the armed forces."

He said defense preparations will create new problems for the forest products industries because troops stationed in many foreign countries need special types of containers. Protective methods such as moisture-proofing need to be improved.

"Some substantial revision of normal production and distribution methods will be needed to meet these requirements," he added. "It also means less products will be available for civilian consumption and it could result in plant conversions."

Mr. Holman reminded delegates that industry expansion takes time. "Pulp mills and saw mills don't blossom overnight, but it is obvious our present production must be increased even more because defense agencies will require a large slice of our present capacity."

Mr. Holman said that General William H. Harrison, head of the NPA, already has stated he "will have nothing to do with any government order impeding defense production."

The speaker revealed that the Forest Products Division has met frequently with paper industry representatives to discuss the types of orders that might become necessary.

"Before any recommendations are made," he said, "the advice of the pulp, paper and board industry will be solicited on the basis of the findings of these joint discussions."

The speaker pointed out that new problems will dictate the types of controls and kinds of orders to be used. "If procurement for direct or indirect military needs is shackled, it will be necessary to remove the impediments."

In conclusion, Mr. Holman called for more understanding between government and industry because "we're all on the same team, with the same opposition, and striving for the same objective."

Mr. Pollock, who introduced both speakers and presided during the meeting, gave a short welcome address. He urged that all businessmen assume their full share of economic problems confronting the nation.

"We learned in the last war the necessity of promptness in pooling our mental, financial and physical resources in an all-out war effort," the NPTA president said. "I firmly believe the paper industry is ready and willing to muster its best efforts for a total war — if and when it comes."

Tuesday afternoon's Fine Paper Division meeting featured two paper industry executives who addressed delegates during the afternoon session.

Present and Future Prospects

E. P. Magel, vice-president in charge of the Fine Paper Division, introduced Morris C. Dobrow, executive secretary for the Writing Paper Manufacturer's Assn., and Harold Holden, vice-president in charge of sales for the Oxford Paper Co., New York.

Mr. Dobrow informed his audience that the business boom of the first six months of the year was overshadowed by the "defense boom" since the Korean conflict began. His complete address will be run in next week's issue.

Government Needs

Mr. Holden, the final speaker on Tuesday afternoon's program, predicted increased demands for paper products. He cited the growing needs of the Federal government for paper as an indication of this trend.

"The government printing office ordinarily uses 10,000 tons of paper a quarter," he said. "Its requirements have nearly doubled since the outbreak of the Korean war."

Mr. Holden explained that induction and mobilization also would create a sharp increase in the paper demands of the defense department. He estimated prospective paper needs of the government would reach 200,000 tons a year.

He reported that the Pulp, Paper and Board advisory committee to the NPA has recommended a system of withholding orders to supply the government. This is similar to the setup used during the last war, when a certain percentage of each mill's production was earmarked for the government.

"It should be known within the next few weeks if the government will accept the committee's recommendation," he added.

Mr. Holden described the paper industry as the sixth largest in the country, exceeded by the automotive, steel, petroleum, meat-packing and cotton goods industries.

The speaker traced the industry's growth and pointed out technological problems.

"An important factor in promoting the paper industry in recent years is the fact that reforestation methods have changed to include growing trees for exclusive pulpwood use," he said. "This is a significant change because for many years pulpwood was a by-product of the lumber industry."

"Although paper always will be integrated with the lumber industry, I feel that reforestation programs eventually will put the pulpwood industry on a self-sustaining basis."

Shortages

Another industry executive, Joseph

M. Arndt, vice-president of the Gaylord Container Corp., St. Louis, told delegates shortages in the coarse paper field were caused by both producers and consumers.

Speaking at the wrapping paper meeting held at 10 a.m. Wednesday, he also stressed the need for all-out cooperation between manufacturers and distributors during the present emergency.

"The Korean war tightened existing shortages," he said, "and scarcity resulted from consumers' scare buying and advance manufacturing."

Mr. Arndt said some manufacturers and distributors over-bought as insurance against delayed deliveries. The significance of this, he pointed out, was that some of next year's items are being manufactured and sold this year.

"Heavy governmental spending at the same time — especially in the laminated and shipping container field — caused more shortages to pop up," he said.

Mr. Arndt reminded delegates that wrapping paper has been short for many years. He explained this was due to curtailment of wrapping paper production by mills anxious to produce to capacity. By running heavy papers, the mill use all the pulp produced for maximum tonnage.

"A bright spot in the wrapping paper field is the jump in bag production," he reported. "Many stores have switched from wrapping paper to bags which have proved to be popular with the ultimate consumers."

Mr. Arndt stressed the importance of cooperation within the industry. "A manufacturer should try to produce items distributors can sell to best advantage," he declared. "Both groups should consider their interests identical."

"The paper business has unique peculiarities," the speaker continued. "We often operate on a feast-or-famine basis because shortages pop up at certain intervals regardless of emergencies or wars."

Mr. Arndt said he was convinced that manufacturers and distributors were willing and anxious to work together for their mutual benefit.

"Complete honesty between both groups in their business and personal relationships will help the entire industry," he added.

Jobbers Problems

Following Mr. Arndt on the speaking program was G. E. Selander, sales manager of the Piasa Paper Supplies Co., Alton, Ill., who outlined a sales program aimed at reclaiming the retail market. Mr. Selander gave a play-by-play review of how his firm stepped up orders of resale paper products.

"Wholesale grocers have made the biggest inroads into our business," he said, "because of the large number of grocery stores now using the cooperative or affiliate type of cost-plus operation. The emphasis is on cheaper buying and selling as a volume-builder, and the result is that most dealers have been trained to compare price while ignoring quality."

Mr. Selander reported his firm made a careful survey to discover the possibilities of reclaiming retail markets. This study took one month of meticulous questioning and research.

"Our survey indicated that grocers were more aware of price in paper than in quality," he reported. "We learned that merchants handled 15 to 20 items in paper and that they realized resale paper is a long profit line. We also found grocers needed information on how to display and merchandise paper products."

The Alton firm's findings showed clearly that a new approach was needed to recapture this market, Mr. Selander said.

"We recognized that selling item-by-item was not effective. Our next move was to sell—not paper items—but paper departments. And we knew our job involved creating a department that would be tangible evidence of our ability to handle this type of plan.

"We solved the problem by designing a fixture for paper products. This rack encouraged sales because of its neat appearance and its capacity to handle enough items for a complete shopping center for household paper requirements."

For a visual aid to supplement his talk, Mr. Selander used one of the firm's display racks. Visible to the audience, the rack showed space for dozens of varieties of paper products.

Mr. Selander explained that the units were made up of movable sections and the unit could be used as a wall installation or it could be set up back-to-back as an aisle piece.

The firm used test runs in stores of varying sizes. Only stores that were not previous customers were used in this experiment.

"Test runs increased store sales on these items 200 to 500 percent," he said. "And the success of our survey gave us the necessary sales ammunition for putting over our selling program."

Mr. Selander explained that to prove the efficiency of their program, they selected two of the toughest customers in town — two merchants who were poison to salesmen. After the test, both stores became customers of the firm.

"I think our success stemmed from the fact that we were offering — for the first time — a positive, tangible program," he said. "The most difficult problems to overcome were space limitations and price. Often it was necessary to make a close study of the store layout to utilize the available shelving."

The price angle was the toughest, Mr. Selander admitted. Merchants were skeptical until the firm proved its program sold products, gave a turnover and showed an adequate profit. As final proof that the program was successful, the speaker revealed that 75 percent of the units were sold to affiliate cost plus stores.

Mr. Selander concluded his talk with the warning that the industry was losing sales volume to outside distributors. But he reassured delegates that the retail markets could be cornered by unified interest and action.

Congressional Viewpoint

The final speaker featured during the three-day meeting was Representative Jacob K. Javits of New York who urged "equality of sacrifice" on the part of all business and industry. Mr. Javits, counsel for the NPTA, spoke at 2 p.m. Wednesday.

"In the present crisis, the American people are willing to accept the cost of military and economic mobilization," he declared. "But they insist on equal treatment."

The New York congressman warned delegates that preparedness was a costly venture. Billions of dollars will be needed for military purposes and to combat communist propaganda throughout the world, he said.

"On the domestic front equality of sacrifice requires a decisive effort by business and industry to halt the inflationary spiral in costs of living," he said. "Excess profits tax should not be opposed."

On the issue of price control, Mr. Javits said the distaste of business for controls must be subordinated to the national interest. He asserted that the consumers price index — which has risen sharply since the Korean war — inevitably will lead to price controls unless business introduces adequate price stabilization measures voluntarily.

"Business should offer proposals to hold price lines by vertical agreements within industries and horizontal agreements between industries," he said. "The corollary issue of wage stabilization can be met by a high level collective bargaining conference of all leading labor federations."

He warned that if some broad scale approach toward halting runaway costs of living is not soon undertaken, the people will demand controls.

Other recommendations offered by Mr. Javits included productivity councils to give workers active interest in their jobs and community councils to deal with problems of aged and handicapped workers.

A member of the House Foreign Affairs Committee, Mr. Javits criticized advocates of a "preventive" war. He said he opposed and felt the people were opposed to this alternative. He asserted a preventive war could be ruled out as a possibility to solving our problems.

"We must realize that Russian leaders firmly believe what they preach," he said. "They sincerely believe that revolutionary communism will inherit the earth.

"This doesn't mean that war is in-

evitable but it does indicate the wide ideological differences that must be bridged to insure peace," he continued.

Mr. Javits urged adoption of a "Pacific Pact" for the mutual defense of the Pacific area. It would be designed on the same lines as the present Atlantic pact.

Mr. Javits attacked this nation's education and information programs as weak and inadequate. "We are far behind the Russian propaganda machine," he said. "Our information system should be shaken up and thoroughly reorganized.

"An integrated defense of Europe and the Pacific are needed as part of our military preparations. This can all be done within the framework of the United Nations," he concluded.

QUARTERMASTER SPECIFICATION AVAILABLE FROM THREE SOURCES

As an added service to manufacturers, processors, and vendors wishing to bid on Army Quartermaster Corps supplies, copies of specifications covering Quartermaster items will be available to prospective bidders after November 1 from any of three Quartermaster procurement agencies, the Department of the Army announced today.

Quartermaster procurement agencies which will supply specifications upon request are: the New York Quartermaster Procurement Agency, 111 East 16th street, New York 3, N. Y.; the Chicago Quartermaster Dept., 1819 West Pershing Road, Chicago 9, Ill., and the Oakland Quartermaster Procurement Agency, Oakland Army Base, Oakland 3, Calif.

DOBECKMUN BUYS BEN-MONT

T. F. Dolan, president, The Dobeckmun Co., converters of films and foils of Cleveland, Ohio, announces the purchase of Ben-Mont Papers, Inc., Bennington, Vt. Ben-Mont is a supplier of gift wraps and paper draperies to the syndicate stores. More recently, it has developed a line of plastic coated papers for military and industrial uses. Included in the purchase is a tissue paper mill at Wells River, Vt. Over 200,000 square feet of buildings on 10 acres comprise the company's real estate holdings.

Financing has been handled by the issuance of Treasury common stock and by a 15-year loan of $3 million from John Hancock Mutual Life Insurance Co. of Boston. A long-term loan with Equitable Life Assurance Society will be retired.

WARRENSBURG MODERNIZES

WARRENSBURG, N. Y. — Repairs have been under way at the Warrensburg Pulp and Paper Co. for the past several weeks and operations are expected to be in full sway by November 1. The mill has been completely electrified and the machines modernized in order that production can be increased. The dam connected with the mill was recently overhauled.

RATING PROCEDURE

WASHINGTON, D. C.—"DO" defense ratings may be applied under NPA priorities regulations to secure containers and other packaging, as well as essential chemicals needed for filling defense contracts for food and petroleum, under an interpretation of the rating procedure issued this week by the National Production Authority.

Under the Defense Act, food and petroleum requirements as such, are not entitled to the DO rating. However, the interpretation by NPA will now permit defense departments and the Atomic Energy Commission to assign to their suppliers of petroleum and food products, as well as chemical components, the right to apply DO ratings on drums, cans and other packaging or containers for these products' delivery. The rating may also be used for obtaining the necessary chemicals entering production of either the petroleum order or the food products.

As examples, the Army places an order with a supplier for flour. As a food product, flour is not covered by the priorities regulation, but the supplier may be authorized to apply a DO rating to secure the necessary packaging or containers required for delivery of the flour;

Or, a defense agency places an order for lubricating oil, in cans; petroleum products, including lubricating oils, are not covered by priorities regulation, but the refining company filling the order requires two types of chemicals in filling the contract.

A DO rating may be authorized for obtaining these chemicals, also the cans for the oil.

N. Y. & PA. REFINANCES

A $20 million loan has been negotiated by the New York & Pennsylvania Co. with the Central Hanover Bank & Trust Co., the Irving Trust Co., and the New York Life Insurance Co. for the purpose of refinancing present loans and reducing the number of outstanding shares of the company. This reduction leaves The Curtis Publishing Co. as the sole stockholder.

There will be no change in the management or the operations of the New York & Pennsylvania Co. The Curtis Publishing Co. will continue to be its principal customer for paper. That production which the paper company has always sold to other customers will continue to be merchandised as heretofore.

FOREST MANAGEMENT LICENSE

VANCOUVER, B. C.—H. R. MacMillan Export Co. has made application for a forest management license covering 200,000 acres of timber in the Port Alberni and Clayoquot Sound area. The application is being made for the Alberni Pacific Lumber Co., a MacMillan subsidiary which operates a large mill at Port Alberni. The area sought is adjacent to 80,000 acres owned by MacMillan.

OPERATE MARCELLUS FALLS MILL

NEW YORK — Industrial Container Corp. purchased the assets of the Yank Paper Co., Marcellus Falls, N. Y., on October 12. The mill is now in operation and is known as the Everett Paper Mills, Inc. The officers are as follows: Marshall N. Posner, president; Eugene Bernstein, vice-president; Joseph N. Spiegel, vice-president; Michal L. Supnik, secretary-treasurer; Carl Farnum, mill manager; and William Pelskey, mill superintendent.

MILK CARTON PLANT

BALTIMORE, Md. — American Can Co.'s new Halethorpe plant for production of paper milk containers officially opened at plant ceremonies on October 19.

The new plant has a capacity of 250 million paper milk "bottles" annually, and will serve the Philadelphia-Baltimore-Washington areas.

F.T.C. FINANCIAL REPORT

WASHINGTON, D. C. — Dollar net sales of paper and allied products corporations covered by the quarterly industrial and financial report of the Federal Trade Commission were higher in both the first and second quarters of 1950 than in the second quarter of 1949, the Commission reported this week.

Net sales, in dollars, for the first quarter 1950, were estimated at $1,411 millions, and in the second quarter, at $1,450 millions, compared with $1,214 millions in the second quarter, 1949. Costs and expenses of the group for first and second quarters, 1950, were respectively $1,237 millions and $1,255 millions for the two quarters, against $1,104 millions in second quarter, 1949.

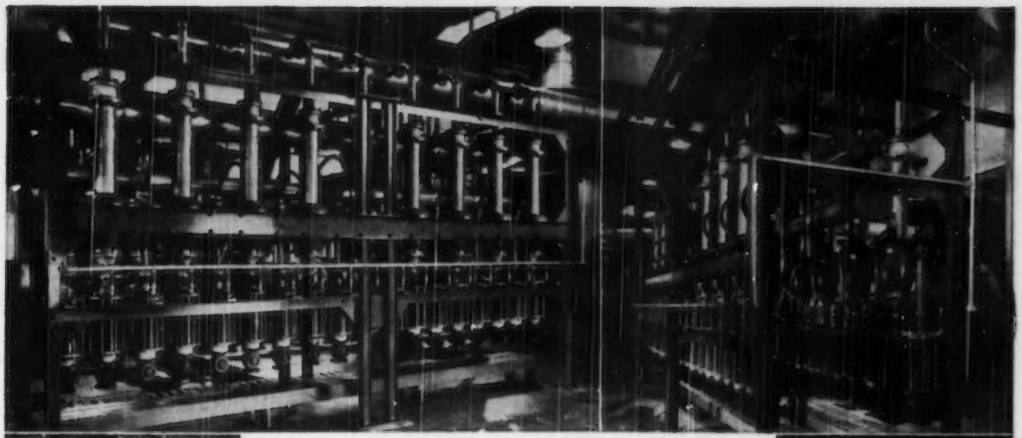
Net operating profit was $174 million and $195 million in the two quarters of 1950 respectively, against $110 million in second quarter, 1949, FTC reported. Net income after Federal taxes, however, for the two quarters this year was respectively $106 million and $122 million, compared with $67 million in second quarter, 1949.

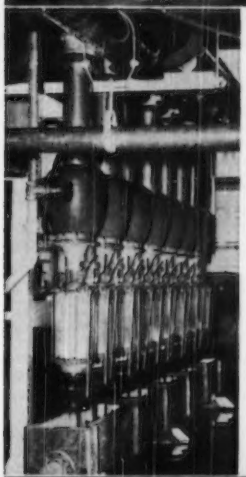
Dividends paid in first and second quarters, 1950, ran respectively to $31 million and $36 million, compared with $34 million in second quarter, 1949.

BOLTON CONTEST EXTENDED

The American Pulp and Paper Mill Superintendents Assn. has announced that the closing date for the Fourth Bolton Award Contest has been extended from November 1 to December 1, 1950. This change in closing date has been made in order to allow ample time for any person interested in the contest to complete his manuscript and to submit it for entry.

The subject of the contest is "Why Profit Is Everybody's Job." It was selected for the purpose of giving more recognition to effective ways of showing the individual employe that his security depends directly upon the profitable operation of his company.





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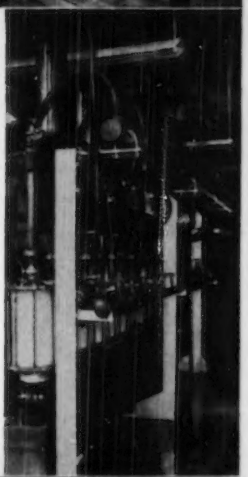

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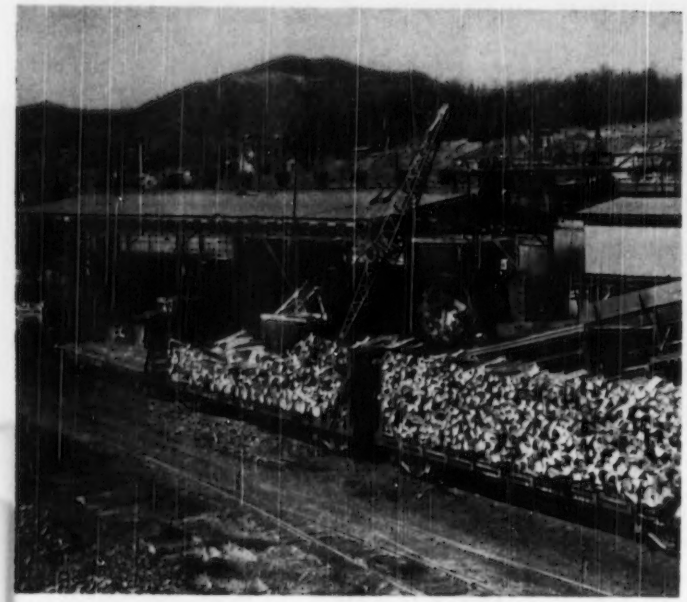

Wood Handling at Champion Paper & Fibre Co., Canton, N. C. with a Bay City ¾ yd. Crane Handling #12 Blaw-Knox Grapple.

PEOPLE

OXFORD PAPER CO., 230 Park Avenue, New York, has announced the appointment of H. Paul Petzold as assistant mill manager of the Oxford Miami Paper Co., West Carrollton, Ohio. Mr. Petzold, formerly plant engineer, has been associated with Oxford Miami in that capacity since 1937.

NATIONAL CONTAINER CORP. announces that John H. Macleod terminated his association with their organization on October 17.

WIL-PAK PACKING PRODUCTS, INC., with offices in the Empire State Building, New York 1, New York, Suite 7724, has named William H. Wilson president.

The corporation specializes in moisture-vaporproof bags, waterproof paper caseliners and allied packing materials for government and commercial application.

WALLOMSAC PAPER MILLS, INC., OF NORTH HOOSICK, N. Y., has named Arthur A. Alcombrack, former manager of the Frontenac Paper Corp. of Dexter, mill manager. For the past 18 months, Mr. Alcombrack has been personnel and safety manager at Bagley & Sewall Co.

Mr. Alcombrack went to Dexter in 1945 as superintendent of maintenance at the Dexter Sulphite Pulp & Paper Co. When the sulphite company sold the Frontenac mill to I. Lawrence Le Savey in 1948, Mr. Alcombrack joined the newly formed Frontenac Paper Corp. as mill manager.

FIGHTING PAPER WANTED

Invitation for Bids has been issued by the New York Quartermaster Procurement Agency, 111 East 16th street, New York 3, N. Y., on QM-30-280-51-600 covering Paper, Map and Manual, Special White, Size 25 x 37-119M, Grain Long, Basis 17 x 22-48 (Sub 24), 500,000 sheets; and Paper, Map Overlay Tracing, Color — Cream White, Size 32 x 42-90M, Basis 24 x 36-54 (Sub 27) Grain Long, 100,000 Sheets. Bids will be opened November 24, 1950, at 11:00 A.M. (EST) at the New York Office. Delivery Schedule: On or before January 31, 1951. This procurement is for the U. S. Marine Corps.

HONOR OLD TIMERS

ERIE, Pa. — Nearly 600 veteran employes of the Hammermill Paper Co. attended the paper firm's annual service honor roll ceremony October 15 in Rainbow Gardens at Waldameer Park.

The long-service employes, all members of the Hammermill Honor Service Roll were guests at a steak luncheon which was followed by a ceremony honoring 118 men who this year observe anniversaries of from 20 to 52 years at Hammermill.

NEW CONTAINER PLANT

SPRINGFIELD, Mass. — Eastern Container Corp., now in Holyoke, makers of corrugated cardboard boxes, are expected to go into production in a new $250,000 building on Parker street, here, within the next six months. The company employs 50 men under the president, Alexander Hirschhorn.

HUDSON TRAINING COURSE

Hudson Pulp & Paper Corp., anticipating the day when a normal market has returned, is now actively promoting a program of sales aids to the paper merchant.

As first step in this program, Hudson recently called the national sales force together for a two-week training period. Most time was devoted to the problems of paper merchants — with lectures and group discussions on how the company and its salesmen can best help solve them.

A new Hudson training course for paper merchants' salesmen, called "Modern Salesmanship," demonstrates basic selling techniques which (if properly understood and used) can move all types of paper merchandise. It is now available to all Hudson distributors.

BEHR-MANNING ADDITION

TROY, N. Y.—John O. Amstuz, vice president of Behr-Manning Corp. announced construction of a new building at the Watervliet plant to house the waterproof sandpaper division.

Since 1940 the Behr-Manning Corp. plant has doubled in size, some ten new buildings having been constructed.

The building for the waterproof sandpaper division will include 60,000 square feet and will be built on land adjoining the present buildings at the northwest. Construction will start immediately.

CUT HOURS BOOST WAGES

General wage increase of five percent, effective November 1, has been granted to approximately 2,000 employes at plants of the Powell River Co., Powell River, B. C., and of Pacific Mills Ltd. at Ocean Falls, B. C.

Contracts of the two AFL unions, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, Local 76, and International Brotherhood of Papermakers, Local 142, do not terminate until June 30, 1951.

The new settlement is B. C.'s first "rider agreement" signed this year in view of the continued rise in the cost of living.

Under the new scale the base rate is $1.18.

Minimum increase will be six cents and the maximum, 10.

Terms also include a cut in hours of work from a 44-hour week to a 42-hour week, as soon as it can be arranged.

In the agreement signed last May the workers received a six-cent hourly pay boost.

ASST. NPA ADMINISTRATOR

WASHINGTON, D. C.—General W. H. Harrison, N.P.A. administrator, announced on October 6 the appointment of Glen Ireland as assistant to the administrator. Mr. Ireland will be on leave of absence from his post as vice-president and general manager of the Pacific Telephone and Telegraph Co., Northern California and Nevada Area.

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Forestry—IV of Series

Improved Methods of Handling Pulpwood

W. S. BROMLEY

Forest Engineer, American Pulpwood Assn.

Abstract

The use of loading docks, winches, trucks and conveyors are considered in loading and unloading pulpwood by the piece. The Dixie Logger system of moving pulpwood on pallets is described. Several new methods of handling wood in bundles are outlined. The movement of pulpwood in the form of chips is briefly discussed. The need for more time and cost studies to weigh these various methods is stressed in concluding this paper.

Introduction

The subject of handling pulpwood is regarded by pulpwood production men east of the Rocky Mountains as the most important activity in their field. This is the conclusion reached as the result of a questionnaire sent to the members of the four Technical Committees of the American Pulpwood Association to learn which of more than 20 phases of pulpwood production were most important. These representatives of pulpwood companies in the regions of the Appalachian Mountains, the Lake States, the Northeast, and the South, from Virginia to Texas, each had an entirely different order of priority of interest for their own region, with one exception. The men from each region were agreed that in their region and in all four regions combined the handling, in other words the loading and unloading, of pulpwood was the most important subject in the equipment handbook of the Association. In this handbook are posted the two to four releases issued each month on the latest developments in the mechanization of our industry. It is evident, therefore, that this paper on "Improved Methods of Handling Pulpwood" deals with a subject which is vital to the pulpwood industry of this country.

The job of getting pulpwood from the ground onto a dray, sled, truck or railroad car is essentially the same regardless of the hauling device being used for transportation of the wood. The methods followed and types of power used to get this job done vary considerably, but it is easier to consider improved methods in terms of whether pulpwood is being loaded by the piece, on pallets, in bundles or as chips.

Presented at the Fourth Annual National Meeting of Forest Products Research Society at Portland, Ore., June 26-29th, 1950.

By the Piece

In spite of the great progress made in mechanizing pulpwood production in the past ten years, the major portion of pulpwood is loaded by hand, piece by piece, in this country. That is why most of the pulpwood handled east of the Rockies is in lengths of 48 to 100 inches, with weights per stick of pulpwood such that one or two men can handle. Hand loading of pulpwood is undoubtedly the most inefficient and expensive means to use. It is not surprising that many ideas have developed to improve on this elementary approach.

The simplest device known to make piece loading by hand easier on men and more efficient is the loading dock or ramp. These docks are usually one or two railroad car lengths long, 4 to 6 feet high, and wide enough to permit a logging truck to drive onto the dock with the aid of a ramp approach as in Fig. 1. Loading docks are found most frequently in the Lake States where pulpwood is primarily 100 inches in length, and for this reason, has a heavier weight per stick than 4 or 5 foot lengths. More consuming companies, large producers and railroad companies should be urged to build such docks as they save as much as 480,000 foot pounds of manpower energy for every carload of pulpwood loaded from them. This should ultimately result in a savings of from $2.00 to $5.00 per car.

There are other simple methods of improving the technique of hand loading of pulpwood such as the use of hand hooks or grabs as used in the Northeast. The adoption of these aids are more a problem of training and human relations than that of mechanization or improved methods.

The simplest mechanized approach to loading pulpwood by the piece is found in the use of a cable on a winch mounted in the rear of truck cabs to pull heavy pieces or bundles of pulpwood onto the truck bed from the rear. A modification of this method developed by the West Virginia Pulp and Paper Company is shown in Fig. 2. It shows how the winch and cable are used to provide for loading trucks from the side of the truck bed instead of from the rear.

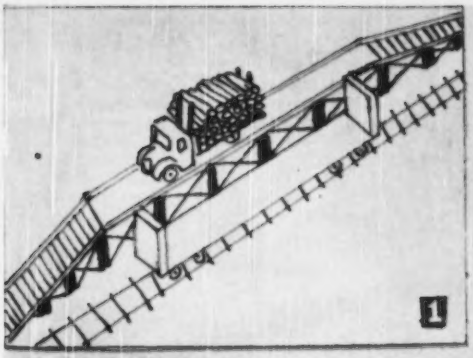
A refinement of truck powered winches can be noted in Fig. 3. It shows an "A" frame mounted at the rear of the truck with a swinging boom which supports the end block through which the cable runs. With this winch powered cable it is possible to lift large pieces or bundles of pulpwood clear from the ground beside the truck. Then the force of gravity, by adjustments in the chain supporting the boom, is used to swing the boom so that its load will center over the truck.

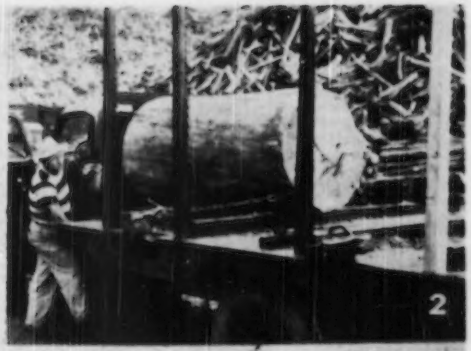
Some progress is being made in using powered conveyors to load trucks and railroad cars by the piece. They consist of two general types. One is the end to end loading type as built by Bosworth Manufacturing Company of Cleveland, Ohio, and modified at the request of the West Virginia Pulp and Paper Company. The other is the side to side loading type which is the most common and widely used now as typified by the Montague "Cord a Minute" Loader shown in Fig. 4 and manufactured by B. L. Montague Company, Sumter, South Carolina. The latter is very efficient and can load as much as 40 to 60 cords of 5 foot 3 inch wood per hour if used to its full capacity.

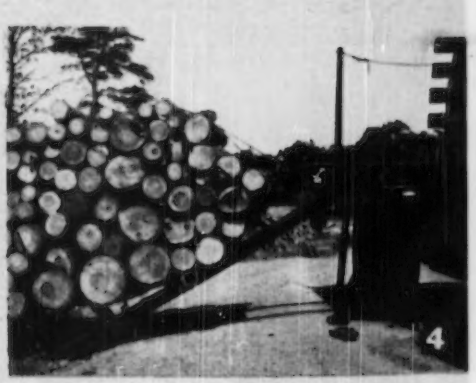
On Pallets

The most significant development in improved methods of handling pulpwood in the South has been the increasing use of the Dixie Logger Pallet System. It consists of hand loading wood on pallets made by the Tidewater Equipment Company. Then trucks which are equipped with a winch to handle these pallets back up to the loaded pallet and pull it with one unit (160 cubic feet) of wood directly onto a special truck bed as shown in Fig. 5.

A recent modification of this system







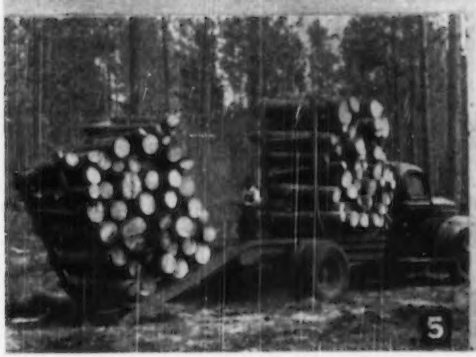


Fig. 1.—Loading ramp. Fig. 2.—Winch-and-cable for side loading. Fig. 3.—"A" frame and boom loader. Fig. 4.—Powered-conveyor loader. Fig. 5.—Pulpwood pallets for rear loading. Fig. 6.—Type of pallet for wider load.

provides for hauling the pulpwood with the sticks parallel to the bed of the truck. In this way trucks are loaded to their capacity as to legal width and better distribution of the load is obtained. Fig. 6 shows one unit of this type which was designed for the use of the Crossett Lumber Company. It has such a high gross vehicle weight capacity in its capacity of 6 to 7 cords that in many states it would be necessary to design a unit of lower gross vehicle weight or use a semi-trailer or full trailer unit in hauling maximum loads permissible under state laws, or to use back country bridges.

As one views the successful application of pallets in the South one cannot help but feel that it should be given more trials in the other pulpwood producing regions of the country. It represents one of the lowest investments in mechanizing pulpwood handling that any of the smaller producers might consider at this time.

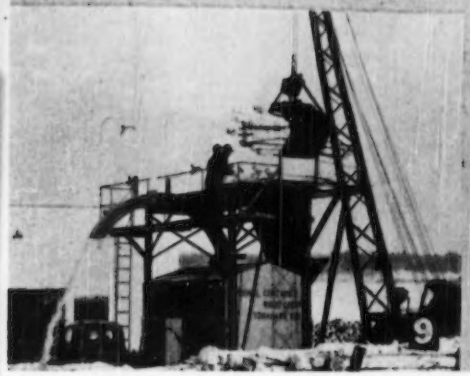


Fig. 7.—High-boom arch handling loaded sling. Fig. 8.—Loading frame to make up loads for shipping. Fig. 9.—Wood being chipped prior to hauling to mill. Fig. 10.—Special trailer unit for hauling chips.

In Bundles

The pulpwood industry is certain to give more and more consideration to handling pulpwood in bundles as they make it possible to move a larger volume per unit. In a well-balanced logging program, the operation which handles the larger unit is certain to have the lower costs per ton of material handled. The bundling of wood requires the use of heavier machinery to handle the larger units. This in turn demands greater capital expenditures than most producers of pulpwood care to invest. For this reason the bundling of pulpwood has been confined to a relatively small number of companies and essentially no independent producer operations.

One of the most successful large-scale loose bundling operations in the East is that of the International Paper Company at Georgetown, South Carolina. On these operations 5-foot-3-inch wood is piled close to the cutting in units of 160 cubic feet. These are lifted and moved in slings by a high boom arch as shown in Fig. 7. The loose bundles of wood are hauled directly to semi-trailer units on woods roads and neatly piled onto trailers through the use of the "Busch Sling" described in Release No. 25 of the Equipment Handbook of the American Pulpwood Association. At the wood yard the entire trailer load of 6 to 7 cords (128 cubic feet) is lifted by large cranes which through the use of the Busch Sling deposits this large loose bundle in a neat pile that is satisfactory even for storage on a barge, onto cars, or in the wood yard.

Close to Georgetown, South Carolina, the West Virginia Pulp and Paper Company is experimenting with the handling of pulpwood in tight bundles of 80 cubic feet, each. These are made up on the scene of the cutting from 5-foot-3-inch wood by forming a circular pile on light frames as shown in Fig. 8. Two steel band straps of $\frac{3}{8}$-inch by 0.050 inch material are tightened by a hand device of the Acme Steel Company, Chicago, Illinois. The resulting bundles are then moved to and loaded on trucks by a high boom arch such as noted above, or a modification of this unit which was designed by the West Virginia Experimental Forest organization at Georgetown, South Carolina.

The most advanced development in the handling of pulpwood in tight bundles is the long or tree-length packaging conducted on West Coast operations.[1] It is to be expected that this use of a large size package would be regarded most favorably there because of the large scale of the operations and the presence of heavy equipment. So long as the Western region has the heavy trucking and loading equipment in use for the handling of sawlogs in lengths from 16 to 40 feet or longer it is likely that it will be practical to use this same equipment for hauling long lengths of pulpwood in packages. It does not seem that this method of handling pulpwood is likely to get much consideration east of the Rockies, so long as operators here secure the major portion of their wood supply from independent contractors and operators who rarely have more

than a single tractor of 25 to 35 hp. and a conventional truck or two of the 1¼- to 2-ton capacity.

As Chips

The most radical development in the handling of pulpwood is that of chipping the wood in or close to the woods and hauling it to the mill as chips. This procedure has been initiated on a trial basis by the National Container Corporation at Tomahawk, Wisconsin and is described in Release No. 73 of the Equipment Handbook of the American Pulpwood Association. The advantages cited for this method of handling pulpwood are:

1. It permits closer utilization of the trees felled by using wood to as small a top as two inches in diameter. It should encourage thinning and utilization of material from second growth stands which could not be cut under most circumstances.
2. The fire hazard in forest stands is lowered because the amount of slash is reduced by closer utilization.
3. Storage in mill yard and subsequent losses from decay are eliminated when the chipper is in operation.
4. The handling of wood in a wood room of the mill is eliminated. All these advantages may result in a saving of as much as $1.50 per cord on the cost of chips delivered to the pulp mill. Against these favorable considerations the following limitations must be regarded:

1. At present only rough poplar is being used and the chips developed are used in a semi-chemical pulping process where the proportion of bark left on the chips is not serious.
2. The largest diameter this chipper will handle is 12½ inches, and it is fed from the top as shown in Fig. 9.
3. Full integration of production of pulpwood in the woods and the hauling of chips to the mill is required and weather conditions may seriously disrupt this in the Lake States.
4. A specialized form of trailer or truck unit as shown in Fig. 10 is required to haul the bulky chips which take up close to twice the volume of a similar weight of wood.

Conclusions

No attempt will be made here to evaluate the relative advantages or disadvantages of hauling pulpwood by the piece, on pallets, in bundles, or as chips. Each company must regard these procedures in the light of its entire capital investment, wood resources, and operating methods from stump to chipper. Decisions as to the most efficient and most economical methods must be based on experience, trial and error, and careful time and cost studies. The pulpwood industry as a whole is not making adequate use of time and cost study techniques in the production of pulpwood. These techniques have for years been used in analyzing pulp mill operations. The fact that so much of the pulpwood is produced by operators who are not under control of the pulp producing companies has retarded the use of time studies in the woods. Ways and means of making these studies in spite of the reluctance of the industry to interfere in any way with the contractual relationship it may have with independent pulpwood producers must be found. Until they are, the industry is likely to progress very slowly in deciding whether it should be using 4-foot, 5-foot, 8-foot, log-length, or tree-length material or whether it should be moving pulpwood by the piece, on pallets, in bundles, or as chips.

The current improved methods of handling pulpwood have been reviewed, but the question of which method is best for your operation can only be determined by your experience, costly trials and errors, or carefully planned, well financed, and adequately staffed cost and time studies.

Welded Steel Drier Rolls

Increased Paper Production and Reduced Maintenance

HARRY FIEBERTS[1]

With demand for paper crowding the economic limits of existing production capacities in most types of paper, producers are paying much attention to manufacturing improvements now available to increase their output. In this, considerable interest has recently been shown in the improved capacities possible with modern, welded steel plate drier rolls and more particularly how production has been increased by the highly efficient jacketed steel drier roll.

Documented information on their higher production, shows that increases of more than 66 per cent have been achieved with increased quality, greater safety and at a lower cost of production. These qualities combined with installation and maintenance economies, also effected, undoubtedly account for the greatly increased acceptance of the jacketed steel drier roll during the past few years.

Increased Acceptance

Over ten times as many Lukenweld steel drier rolls have been produced in the years following World War II than were previously produced, indicating recognition of their benefits by an increasing number of manufacturers. *(Figure 1)* graphically portrays the rapid growth in installations since the War, from a figure of less than 100 up to 1941, to a total of over 1000 to date. Lukenweld welded steel roll number 1000 was shipped in the spring of this year to the southern plant of one of the country's leading paper manufacturers. It is one of an order for six jacketed steel rolls designed for a steam pressure of 150 psi, for the purpose of increasing production on a fourdrinier machine producing Kraft specialties. *(Figure 2)* Many of the 1000 drier rolls represent repeat orders.

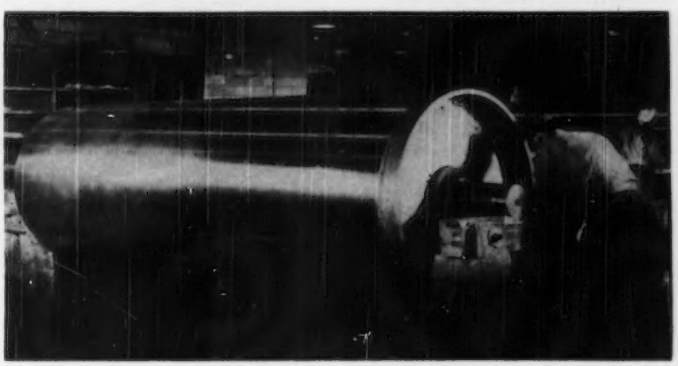


Figure 1. The 1000th welded steel drier roll fabricated by Lukenweld.

[1] Development Engineer, Lukenweld, Division of Lukens Steel Company, Coatesville, Pa.

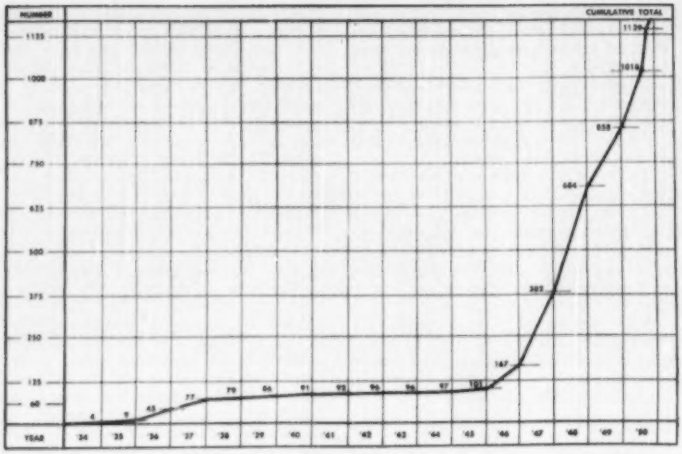


Figure 2. Chart showing cumulative totals of Lukenweld drier roll shipments to date.

Widespread Use in Industry

The majority of these rolls have been installed in paper and board mills, some in complete drier sections that have been added to existing machines. Many are used in plants producing plastics, chemicals, pharmaceuticals, linoleum, roofing, foods, soaps, textiles and in printing. They are now in use in the United States and several other countries. They are used in drying, flaking or cooling processes.

First Application

In 1934, the first welded steel dried roll was installed at a Pennsylvania board mill to replace a roll of another type of construction which had failed. At that time there was considerable favorable comment because of the increased operating efficiency and longer bearing life through improved journal design which resulted. These advantages have contained over the more than 16 years of nearly continuous service rendered by this drier roll.

Roundness Tolerance Maintained

When examined recently, this roll was still round to within a tolerance of 0.004". Since the machining tolerance had been ± .005", the variation was negligible.

Double-Shell Feature

Moreover, it was this application of welded steel construction to drier roll design that first indicated opportunity for improving on several features inherent in conventional, single-shell design, by confining the steam to an annular space between *two shells*. With the drier roll of double-shell or jacketed type, heavy end design could be eliminated. Steam enters the journal and passes through spokes into the jacket. *(Figure 3)* Condensate is removed by a syphon pipe.

Design Developments

By directing the steam between the two shells the velocity of the steam is increased and also the incoming steam forces the entrained air and other non-condensable gases to the end of the drier where the rotating syphon pipe removes these as well as the condensate on each revolution of the drier. With the jacketed drier it is practically impossible to have an "air-bound" drier which would lower the drying rate.

Improved Drying

The steam traveling between the two shells provides for uniform temperature and an increased drying rate because the steam is being directed across the surface where the heat will have the greatest effect.

The higher strength of steel plate allows the use of lighter gages for the shells which also helps the increase of heat transfer for more production.

Costs Quickly Defrayed

Since the jacketed steel drier roll is a more efficient heat exchanger, insuring more production, they pay for themselves quickly out of resulting production increases. A company which installed jacketed steel drier rolls to replace several ordinary rolls in a drying machine showed that they paid for themselves in 268 days—as a result of the 15 percent-20 percent additional output per jacketed roll. This estimate was based on the jacketed steel rolls operating at the same steam pressure as the original rolls. From then on the increased production was clear profit.

In its estimates the company used these costs:

$40.00 Raw Material Cost
+ $25.00 Operating Cost

$65.00 Cost per Ton of Product

Based on a selling price of $85.00 per ton, there was an operating profit of $20.00 per ton.

Using the standard formula, *Table I*, based on all rolls operating at 50 psi steam pressure, the user showed that the Jacketed Rolls paid for themselves in 268 days.

Production Increases at Higher Pressures

This company, however, is now running its jacketed steel rolls at 150 psi. Had the estimate been based on this higher pressure with the advantage of the jacketed driers, the result would have been 48 percent additional output per jacketed roll; it would thus have shown the rolls had paid for themselves in 85 days.

Safety

Much has been said about the higher strength of rolled steel plate and its *safety* at high pressures. This feature alone has led to many installations where increased production was

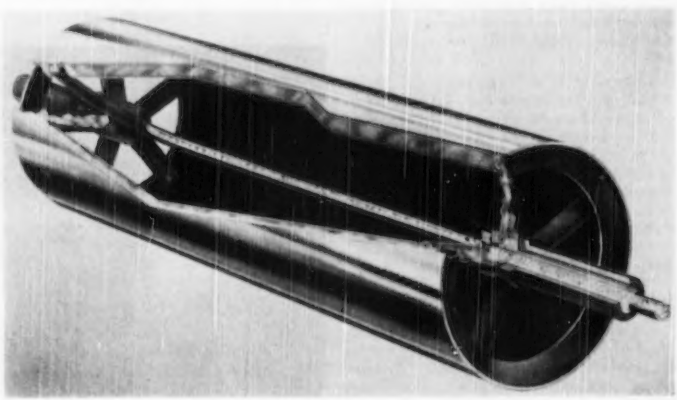


Figure 3. Cut-away section showing steam circulation and condensate removal features.

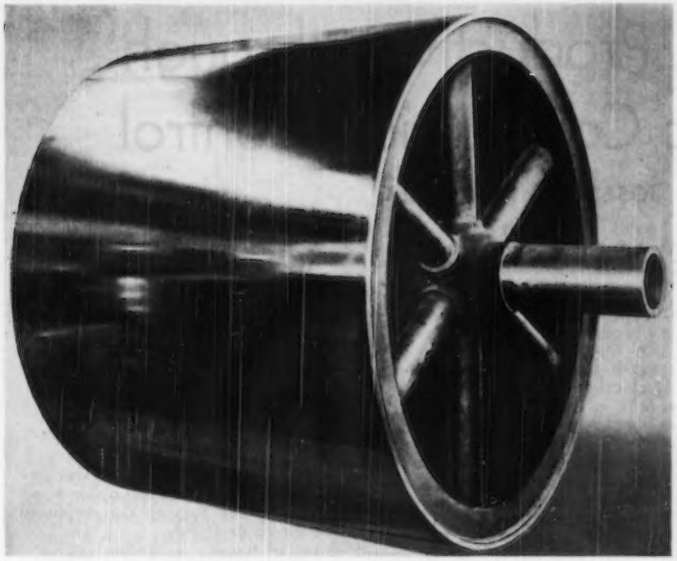


Figure 4. Early Yankee drier roll with double-shell construction.

achieved *safely* through the use of considerable additional heat across the machine. Steel plate rolls will never fail by shattering even though design pressures are exceeded. Insurance companies recognize this feature.

Increases and Quality Protection At Low Pressures

Less has been said about the use of jacketed drier rolls for low pressure operation. Production increases are being made by operating jacketed drier rolls at the same or lower pressures than those at which ordinary type rolls are operated. Since the level of increased drying rate rises as roll diameter increases, a well-known paper mill producing tissue, by installing a large Yankee drier of jacketed steel design, was able to reduce its operating pressure from 45 psi to 12 psi and to increase the speed of its machine for more production. *(Figure 4)* A newsprint mill is applying the same principle to two of its fourdriniers and operating jacketed drier rolls at the same low pressures as conventional rolls, thus stepping up production. Operating at low pressures is also an important advantage in producing high-grade printing papers where excessive heat might prove detrimental to the quality.

Preventing Wet or Wavy Edges

Driers of conventional design, when in operation at the wet end of a machine, must be made with wider face than those on the dry end or they may cause wet or wavy edges since the mass of metal plus the heavy end heads of the conventional drier prevent the steam from heating the ends uniformly. Frequently, three or more inches of effective drying width must be added, as an expedient. The design and construction of the all-welded jacketed steel drier roll solves this problem since steam circulates in the shallow space between inner and outer shells, close to the edge. Virtually the entire face provides effective drying, thus eliminating unsatisfactory edges.

Reduced Down Time

The double-shell roll is more flexible in operation. Pressure variations can be made faster and are reflected sooner. It takes only half as long for this type of roll to cool down or heat up, thus expediting maintenance requirements, such as getting at steam joints and other needs.

Where regulating steam for moisture control on the dry end, pressures can be changed quickly and easily with jacketed steel rolls since there is usually about seven times the volume of steam in a single-shell roll as in a double-shell roll. This is illustrated in producing a lithograph paper in which curl is controlled by cutting off certain driers. With jacketed steel drier rolls cut-backs can be made quickly and easily.

Minimum Maintenance

Differing from the conventional drier roll with its condensate removal pipe always maintained in a downward position, the syphon pipe of the jacketed steel drier roll is welded in a fixed position and *(Figure 3)* revolves with the roll. It requires a minimum of attention and is virtually maintenance-free. It takes out a definite amount of condensate with every revolution and prevents the risk of inadequate removal which can result from faulty assembly or alignment. This method of condensate removal operates with equal efficiency at any speed.

Because of the increasing applications and recognized superiority of the jacketed steel drier roll over the ordinary drier, a plant manager has made the observation that "a jacketed steel drier roll equals a drier-and-a-half"; or two jacketed steel drier rolls will do the work of three of the conventional type. This is a conservative figure, however, subject to variation in direct proportion to the rate of steam pressure variation and increase.

TABLE I

FORMULA FOR FIGURING PRODUCTION INCREASES AND TIME REQUIRED FOR DRIER ROLLS TO PAY FOR THEMSELVES

$$\frac{\text{Tons produced by machine per day}}{\text{Total number of ordinary driers}} \times 15\%^{*} = \text{Additional tons per Jacketed Steel Drier per day}$$

$$\frac{\text{Cost per Drier}}{\text{Additional tons} \times (\text{Operating Cost} + \text{Operating Profit})} = \text{Number of days for Jacketed Rolls to pay for themselves}$$

* 15% is the increased production per Jacketed Steel Drier and with all rolls (ordinary and jacketed) operating at only 50 psi.

BOTTLENECK ELIMINATED

PITTSBURGH, Pa.—The Pennsylvania Railroad announced the removal of a bottleneck which will save thousands of car days annually for shippers.

The project eliminates a kink in the Columbus - Pittsburgh stretch of the Panhandle Division which has forced 84,000 cars to detour annually.

The $9 million project begun in June, 1948, has removed four tunnels and straightened curves on one of the nation's most vital transportation arteries.

Eliminated are four tunnels between Steubenville and Dennison, Ohio, which were built before the days of the present high box cars and locomotives. Before the removal trains had to be broken up at Columbus and Terre Haute, high cars screened out, then rerouted around to Pittsburgh with added distances of 54 to 72 miles. Western movements required the same rerouting at Pittsburgh.

A fifth tunnel has been modernized to handle the big cars which are being used increasingly, particularly by western railroads.

Increased Productivity through Automatic Combustion Control

JOSEPH A. PERRY, JR.[1]

Abstract

The vigorous competition among American Pulp and Paper Mills places strong emphasis on the need for cutting costs and increasing productivity by using improved techniques. Frequently overlooked is the basic factor of a greater output per dollar expended, from the plant boiler house. Many new techniques have evolved during recent years in the field of automatic combustion control. Taking full advantage of these new developments will sharply reduce the power costs for many of America's pulp and paper plants. The following discussion points out the possibilities of improving power plant efficiency.

Why is a Combustion Control System Necessary in the Modern Power Plant?

The first reason is simply for *proper operation of the equipment.* Steam operated equipment is designed for one specific pressure. Too low presure will reduce capacity, and too high pressure will cause excessive wear on boiler safety valves. While in some cases boiler load swings are few and of negligible amount, the average power plant will have a constantly varying load. In some cases, frequent, violent load swings are part of normal operating conditions. Manual, accurate coordination of all of the factors involved is a very difficult job even for the best of operators. Automatic controls are available which will control boilers from the smallest to the largest with amazing accuracy.

The second reason a combustion control system is a necessity is for *economy.* Control devices can be arranged to obtain optimum efficiency over a wide range of operation. Simplified or quite involved systems are available depending on the specific requirements for fuel economy.

Another factor to be considered is the reduction in operating personnel. For small plants, automatic boiler control will permit use of operators for maintenance under normal operating conditions. Large power plants of today are now run with an amazingly small number of operating personnel in relation to the power production.

[1] Application Engineer, Republic Flow Meters Co., Chicago, Ill.

** An interesting note is that experiments are now being made with pressurized furnaces having no induced draft fans.

What Are the Functions of a Combustion Control System?

The first and primary function is to *maintain the boiler steam pressure.* In most plants steam pressures can be held within very close limits. However, it is well to bring out that the ability of a combustion control to maintain steam pressure is ordinarily limited only by the characteristics of the boiler itself and the fuel, *and not by the controls.* For example, should there be a very large drop in load, the steam pressure will rise and the controls will begin to close. The ability of the controls then to restore the pressure will be a function of the heat storage of the boiler walls and casing. Conceivably the controls could close completely and the pressure would continue to rise.

The type of fuel and the method of fuel firing will influence the pressure. For example, the same boiler will usually operate more smoothly and hold pressure more closely when firing gas than when firing pulverized coal.

Figures 4, 5, and *6* indicate systems where the fuel and air are increased or decreased simultaneously to maintain steam pressure. Many variations are available depending on the specific conditions encountered. A chain grate stoker fired boiler has a relatively constant amount of fuel available at any one time. The ability of the control to change the amount of fuel is a function of the speed of the grate. Therefore, instantaneous changes are accomplished by varying the air supply under the grate.

Next, the system must *control combustion with the greatest economy by maintaining the fuel and air at the proper ratio.* This is the second function of, and is commonly done by controlling the air supply to the burners

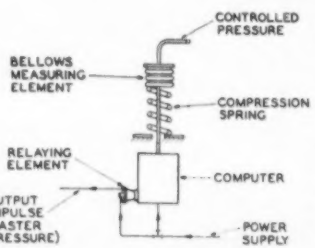


Figure 1. Diagram of Master Steam Pressure Regulator.

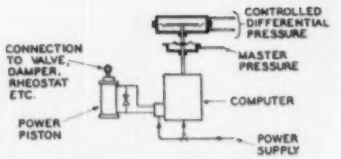


Figure 2. Diagram of air flow regulator.

or grate in proportion to the fuel supply. In *Figures 4, 5,* and *6* this is accomplished by varying the output of the forced draft fan.

Finally, *the products of combustion must be removed from the furnace.* And as part of the same problem the pressure inside of the furnace must be kept slightly below atmospheric** so as not to allow any flue gas to escape into the boiler room, but at the same time must be kept as close to atmospheric pressure as possible so as not to draw in any more cold air through the boiler casing than necessary. This is commonly accomplished by varying the output of the induced draft fans.

The case of the natural draft boiler will not be considered here, however, if the basis of control for boilers with forced and induced draft fans is understood, the natural draft boiler is comparatively simple.

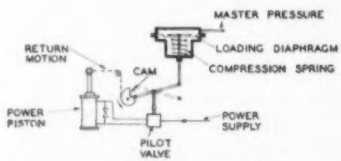


Figure 3. Diagram of positioner in combustion control system.

What Are the Elements of an Automatic Combustion Control System?

The two basic elements to be considered are A, the regulator, and B, the positioner. "Instrument Controllers" as manufactured by some companies may be considered as regulators. They perform the same function as a regulator but in a somewhat different manner.

A. *The Regulator.* A regulator may be thought of as a computer. It has the ability to "Think." A regulator

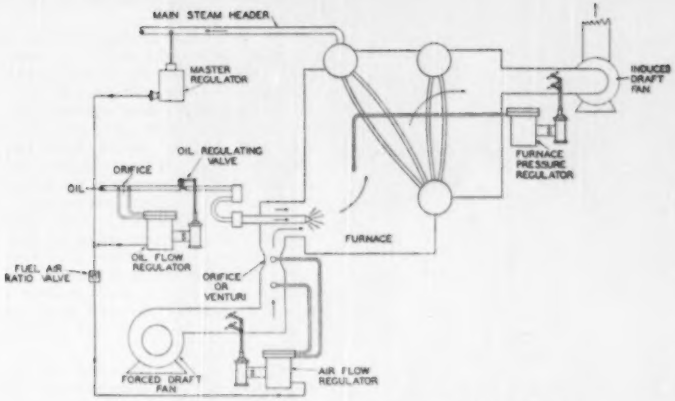


Figure 4. Diagram of combustion controls on oil burning system.

can "Tell" a valve what to do so that the valve will maintain a pressure or flow or temperature. A regulator consists of three separate elements:

a. the measuring element.
b. the computing element.
c. the power or relaying element.

Consider *Figure 1* which shows in detail the master steam pressure regulator indicated on *Figures 4, 5,* and *6*. Here we have a force created in the bellows unit by the steam pressure. This force is balanced by a compression spring. The combination of the bellows and spring is the measuring element.

Below this is the computing unit. Since there are numerous designs of computing units no special type is indicated. The computer will go into action only when the measuring unit gets out of balance due to a change in controlled pressure.

In *Figure 1,* the output impulse is dispatched by a relay. This may be a pressure or electrical impulse. The purpose of this relay is to transmit an impulse as called for by the computer. This impulse, of course, must go to the unit which is affecting the measuring element. Notice in *Figure 2* that there is a power piston in place of the relay shown on *Figure 1*. Whether the computer actuates a power unit directly or remotely makes no difference as far as the computer action goes. Also some companies manufacture electric motors for power units. This still is only incidental to the computer action.

The purpose of the computer then is to cordinate the impulse from the measuring unit and the output to the relay unit so as to maintain the controlled pressure at some point as determined by the force exerted by the compression spring.

Figure 2, shows a detailed diagram of the air flow regulator indicated on *Figure 4*. Here the measuring element is a differential diaphragm type measuring unit which measures a differential pressure across a restriction in the air supply to the burners. Since it is desirable to restrict the air supply as little as possible, large diaphragms are usually used which enable regulators to control differential pressures as low as 1" of water maximum. Opposing the force created by the differential diaphragm is a master loaded diaphragm. This diaphragm receives an impulse from the master regulator. So, whereas the master regulator will be in balance only at one point, the air flow regulator can be in balance at *any* differential pressure depending on the master diaphragm pressure.

The type and setting of the computer element will depend on the process being controlled.

Three types of actions will be described here.

A. *Proportional Position*—This is one of the simplest types of controls where the "Set Point" will vary with load. Examples of this are thermal type feedwater regulators and small pressure reducing valves. Since these controls will not hold a constant "Set Point" they are suitable only for the simplest type of combustion control and will not be considered here.

B. *Proportional-speed-floating*—This type holds a constant "Set Point" and will correct at a speed proportional to the deviation from the "Set Point." This type of control would be applied to a process similar to turning on a water faucet where the rate of response is very rapid. In the control systems to be described, all of the regulators controlling dampers as well as the oil and gas regulators have this action.

Proportional Plus Reset—This type holds a constant "Set Point" and is a combination of A and B. This type of control would be applied to a process similar to the operation of an automobile. To accelerate an automobile the driver steps down hard on the accelerator. As the car approaches the desired velocity, he begins to release the accelerator and will continue to do so until the final speed is reached. It is necessary to use this action when large amounts of inertia have to be compensated for. In the control systems shown below all of the master regulators have this action to compensate for the thermal inertia of the boilers. Also the steam turbine control shown is of this

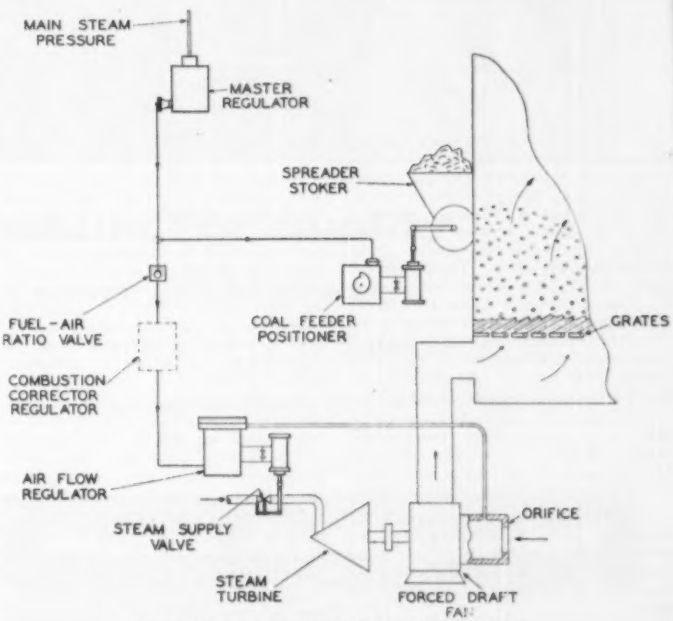


Figure 5. Control system on Spreader Stoker fired boiler.

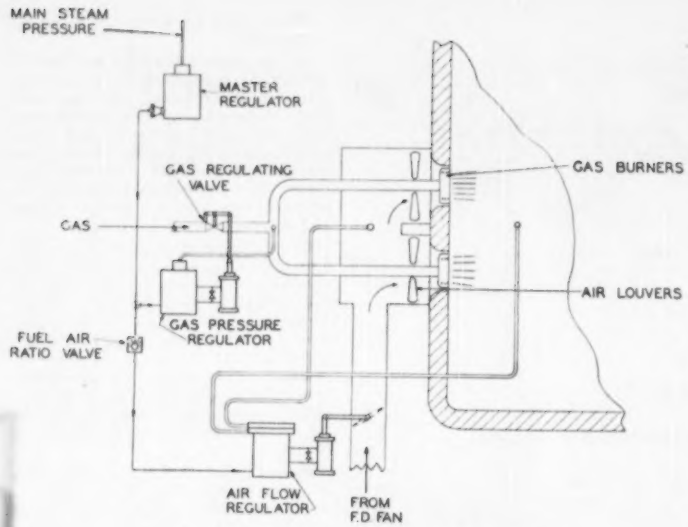


Figure 6. Typical gas-fired boiler control system.

type as the combined weight of the turbine and fan rotors represent considerable inertia.

The second element of a combustion control system is the *Positioner*. It is important to point out the basic difference between a regulator and positioner. Whereas a regulator has the ability to "think," a positioner can only "take orders." A Positioner usually works in conjunction with the relay type of regulator *(Figure 1)*. Simple positioners can be made to give a position proportional to master pressure such as are formed on diaphragm type valves; or more complex ones with cams are made allowing the power unit to assume *any* position in relation to master pressure. Such a positioner is shown in *(Figure 3.)* The parts are first, the loading diaphragm which receives the master pressure and thereby compresses the loading spring a definite amount. This motion displaces the pilot valve which is "Floating," causing the power piston to move. A return motion link causes the cam to rotate, lifting the pilot valve. The piston will move the distance which is necessary to restore the pilot valve to neutral. This distance will be determined by the shape of the cam. Cam discs made of sheet metal are supplied so that they can be shaped in the field according to the specific requirements of the job.

Cam operated positioners are necessary for coordinating mechanisms which are not directly measurable and also for coordinating two or more processes having dissimilar characteristics.

Having discussed the necessities, the functions and the elements of automatic control systems, let us take some examples of typical installations. Three fuels will be considered—oil, coal, and gas.

Oil—A system for burning oil is shown on *(Figure 4.)* The master pressure regulator works directly from the steam pressure and dispatches a loading pressure* simultaneously to the oil flow regulator and the air flow regulator. The oil flow regulator measures a differential across an orifice plate in the oil supply header, and the air flow regulator measures a differential across a venturi section in the duct leading from the F.D. fan to the windbox. The differentials across the air venturi and the oil orifice both vary as to square of the flow. The problem is to maintain the oil and air in the same proportion for all loads. Since the differentials are a function of flow, the requirement then is to maintain a constant ratio of the two differentials. Note that it is not necessary to have the differentials equal—only that their ratios be constant.

Sliders are built into the regulators for adjustment of the ratio in the field. Then with the same master loading going to both regulators, the same fuel-air ratio will be maintained for all loads. Notice that a fuel-air ratio value is indicated in the loading line to the air flow regulator. This is sometimes called for so that adjustments of the fuel air ratio can be made from the control panel to account for variations in fuel quality.

Figure 4 indicates that the furnace pressure is being controlled by a regulator which operates the inlet dampers of the induced draft fan. Here it is necessary to run a pressure tap from the furnace to the regulator. The pressure tap should be taken in the immediate vicinity of the flame. Ordinarily the furnace pressure regulator operates as an independent unit as is indicated in *Figure 4*.

Coal—A typical arrangement of a *spreader stoker fired boiler* is shown in *Figure 5*. Here the stoker feeder adjustment is being controlled by a positioner, and the air flow regulator controls the steam supply valve to a steam turbine driving the forced draft fan.

Notice that a plenum chamber has been placed on the suction to the forced draft fan with a slight restriction in the opening. This is a very good method in which to obtain an air flow measurement, as it results in a very even velocity distribution. Note that only one connection to the regulator is required, since the pressure upstream from the restriction is atmospheric pressure.

The master pressure to the air flow regulator will be in proportion to the square of the air flow (and consequently in proportion to the square of the boiler load). The next problem is to determine the relationship of the coal feeder adjustment with load. This depends entirely upon the manufacture of the feeder and this information must be available in order to correctly cut the feeder cam. Once this information is known—the shape of cam can be determined and should be cut so that the feed will vary as the square root of the master pressure (e.i. the feed will vary directly as the boiler load).

A combustion correction regulator is shown in the loading line to the air flow regulator. This will be described later.

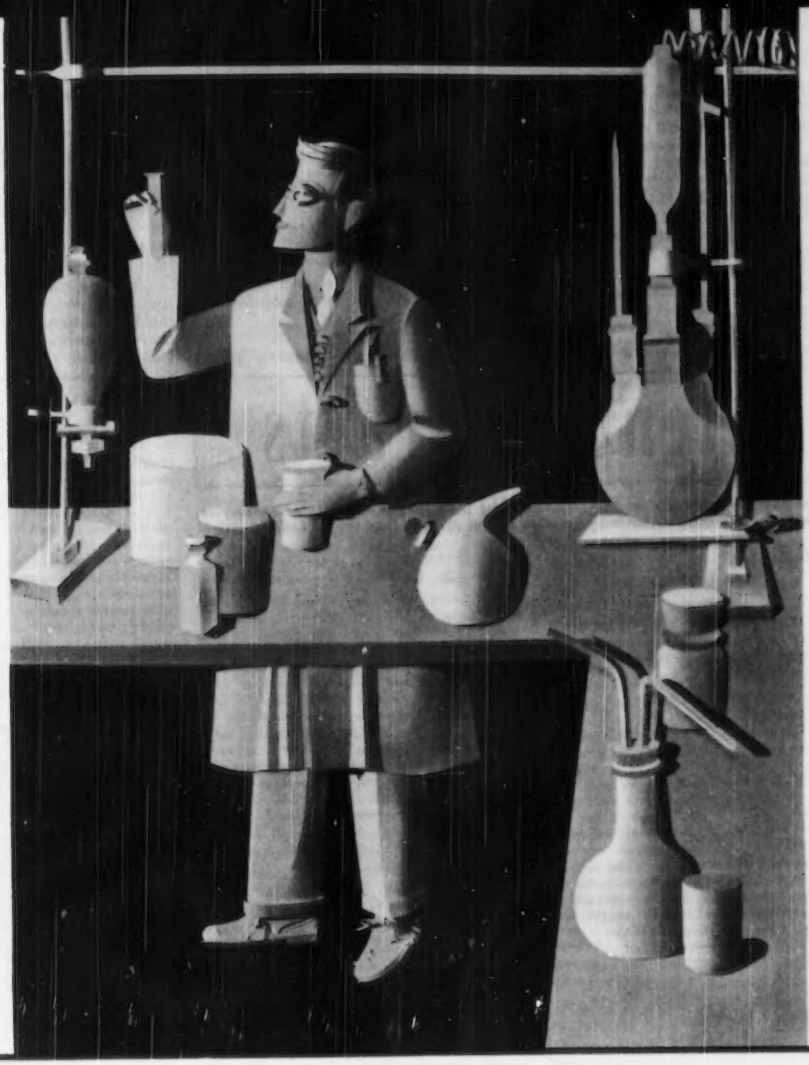
Gas—Figure 6 shows a typical gas firing control system. The master regulator is shown loading a gas pressure regulator. The gas burner pressure will then be in proportion to the master pressure. The burner jets may be considered as orifices, so the gas flow will vary as the square root of the burner pressure and also as the square root of the master pressure.

Note that the air flow connections measure the pressure drop across the burners. Since most burners operate with the louvres at one particular setting, the restriction to the air flow will be a constant, and the air flow will vary as the square root of the differential pressure across the burners. Thus the air flow and gas flow will always be in the correct proportion.

The same type of system indicated in *Figure 4* could have been used here. The advantage of the type shown in *Figure 6* over that of *Figure 4* is that the former will be more accurate at low loads. In *Figure 6* whether one burner or four burners are operating the master pressure (which is the same as gas pressure) can be the same. However, in *Figure 4*, when only one burner is operating the master pressure will be *much* lower than when four burners are operating. The closer a control can operate near its maximum value, the more accurate it will be.

Metering and Positioning Control Systems—Figures 4 and *6* are examples of full metering control systems. Ac-

* Pneumatic controls are being considered; however, the general principles of combustion control are the same for electronic systems, hydraulic systems, etc.



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- EBG* Liquid Chlorine
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tual values of fuel and air are taken and proportioned accordingly. *Nothing is assumed.* Note that for the coal firing system, it is assumed that the fuel supply is proportional to the fuel feed rate. While this measurement can be made accurately, the *fuel is not actually being measured.* If in *Figure 5*, the turbine valve were operated with a positioner, this would be a full positioning control system. It would then be necessary to calibrate the turbine valve position with air flow.

A positioning system is seldom if ever more desirable than a metering system, and is usually applied to small, inexpensive boilers.

A combustion corrector regulator is shown in *Figure 5.* These are sometimes employed to make a positioning system approach a full metering type system. Since, in *Figure 4*, coal cannot be measured directly, steam flow is taken as an indication of coal feed. Steam flow is balanced against air flow, and the output of the master to the air flow control is corrected accordingly.

Summary

This discussion has touched briefly on the fundamentals of several arrangements of combustion control equipment. While all control systems have a common purpose and work on the same basic principles, in detail, each system must be engineered for the particular set of operating requirements involved. Abundant information is available from the engineering department of any well established and reputable control manufacturer. Recent improvements and innovations in the field of automatic control may be the answer to raising output and cutting costs in your own plant.

Patent Abstracts

● In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.

United States

U.S. *2,523,488—Folding Box.* Marshall I. Williamson, New Haven, Conn., assignor, by mesne assignments, to National Folding Box Company, Incorporated. Filed June 8, 1946—Issued September 26, 1950.

A carton blank of fibrous board for tight sealing folding cartons comprising wall panels hingedly connected along side fold lines and end flaps connected to said wall panels along end fold lines extending substantially at right angles to said side fold lines, the end flaps being separated by cut lines extending entirely through the board and running parallel with said side fold lines and terminating at points short of the respective end fold line, the end flaps being partially separated between said points and said end fold line by surface cuts extending from the outside surface of the blank part way through the board, said surface cuts running parallel with, but spaced from, said side fold lines.

U.S. *2,523,642 — Fibrous Pulp Digester.* Frederick George Lucas Becker, Hatch End, England, assignor to Cellulose Development Corporation, Limited, Hatch End, England. Filed January 12, 1944—Issued September 26, 1950.

Extraction means for a continuous digesting tower for the manufacture of pulp from fibrous material comprising two toothed rotatable drums arranged in an opening at the bottom of the tower with their axes parallel, a casing surrounding the drum, which teeth are arranged in circumferential rows so that the rows on one drum are opposite the rows on the other drum but so that the teeth on one drum are in advance of the teeth on the other, which teeth are so arranged that the tips thereof on one drum approach closely the surface on the other drum at the zone of minimum separation, the depth of which teeth and the spacing between the drum and the casing being selected to prevent the passage of the required ratio of liquids and solids from the casing except in the direction of movement of the drum by the action of the moving teeth, casing being formed to provide an unobstructed passage below said zone thereby providing for free fall of the solids.

U.S. *2,523,705—Synthetic Wax of Carnauba Type.* Stanley P. Lovell, Newtonville, and Harry H. Straw, Arlington, Mass., assignors to Lovell Chemical Company, Watertown, Mass. Filed February 15, 1947—Issued September 26, 1950.

The process of making a conjoint crystal of polyethylene and paraffin, which includes the steps of first melting paraffin, heating it to a temperature of approximately 320° F., adding solid frangible polyethylene in the proportions 19-91% polyethylene to 81-9% paraffine, while maintaining the paraffin in slight agitation until the polyethylene loses its natural translucent appearance, at this point greatly increasing agitation of the molten mass, and continuing agitation while maintaining substantially the said temperature until no polyethylene crystals are observable in cooled samples.

U.S. *2,524,024—Method of Making Carboxymethyl Cellulose.* Richard W. Swinehart, Midland, and Stanley R. Allen, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich. Filed October 16, 1947—Issued September 26, 1950.

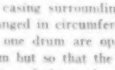
The method which comprises: first, immersing cellulose of high alpha-cellulose content in a water solution of sodium hydroxide of from 35 to 50 per cent concentration, pressing the mass to leave a ratio therein of from 0.45 to 1.0 part by weight of sodium hydroxide per part of cellulose; second, immediately thereafter impregnating the resulting alkali cellulose with a water solution of chloroacetic acid of from 50 to 80 per cent concentration and pressing the mass to leave a ratio therein of from 0.6 to 2.2 parts by weight of chloroacetic acid per part of cellulose; third, immediately thereafter impregnating the so-treated mass with additional sodium hydroxide solution of from 35 to 50 per cent concentration and pressing the mass to retain therein a total amount of sodium hydroxide from the first and third steps between 0.75 and 1.75 parts by weight per part of cellulose; allowing the resulting mass to stand for at least one hour at a reaction temperature between 0° and 80° C., and recovering the sodium salt of carboxymethyl cellulose therefrom always containing at least 0.6 carboxymethyl group per C_6 unit and which is directly soluble in water to form a haze-free solution never containing over 0.25 per cent of insoluble matter.

U.S. *2,524,030—Method of Closing Bag Tube Ends.* Henry H. Allen, New York, N. Y., assignor to Bemis Bro. Bag Company, Minneapolis, Minn. Filed October 5, 1942—Issued October 3, 1950.

A method of closing and sealing an open bag top, which consists in pressing the walls of the open bag end into flatwise relation with the edge walls intucked between the side walls, thereby to provide an outwardly facing recess at each end of the bag top, bonding together the marginal edge portions of all of said walls along the length of the bag top, applying a strip of tape of uniform width its full length over the flattened bag top with its end portions projecting beyond the side edges of the partially sealed bag top and whereby said projecting end portions are U-shaped in cross-section, tucking the projecting U-shaped tape ends into the recesses provided at their respective ends of the bag top and adhering them to the adjacent outer surfaces of the intucked edge walls, and subsequently applying an adhesive to the exposed surfaces of the intucked tape ends and pressing said surfaces into intimate bonding engagement with each other at each corner of the bag top.

U.S. *2,524,111—Resinous Composition and Method of Making Same.* Fred G. La Piana, Providence, George N. Houth, Cranston, and Raymond W. Farrell, Saylesville, R. I., assignors to Stein, Hall & Company, Inc., New York, N. Y. Filed September 28, 1945 Issued October 3, 1950.

An aqueous solution of a resinous composition comprising a reaction product prepared by reacting, as the sole reactants, (1) from 4 to 40 parts by weight of an alpha-hydroxy-monocarboxylic acid having the general formula RCOOH, wherein R is a member of the group consisting of lower alkyl and phenyl radicals substituted in the alpha-position by a hydroxy group, (2) from 10 to 30 parts by weight of a component selected from the group consisting of urea, thiourea, guanidine, carbamyl urea and biuret, (3) from 35 to 80 parts by weight of an aldehyde component, and (4) from 0.3 to 25 parts by weight of an ethanol having the general formula.

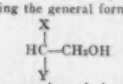


wherein X is a member of the group consisting of H and OH and Y is a member of the group consisting of OH, lower alkoxy, lower hydroxy alkyl and lower hydroxy alkyl ether radicals, Y being a member of the group consisting of OH and lower hydroxy alkyl ether radicals when X is H, and being a member of the group consisting of lower alkoxy and lower hydroxy alkyl radicals when X is OH

U.S. *2,524,112—Resinous Composition and Method of Making Same.* Fred G. La Piana, Providence, and Edmund C. Tarnuzzer, Rumford, R. I., assignors to Stein, Hall & Company, Inc., New York, N. Y. Filed September 28, 1945—Issued October 3, 1950.

An aqueous solution of a resinous composition comprising a reaction product prepared by reacting, as the sole reactants, (1) from 6 to 20 parts by weight of an alpha-hydroxy-monocarboxylic acid having the general formula RCOOH, wherein R is a member of the group consisting of

lower alkyl and phenyl radicals substituted in the alpha-position by a hydroxy group, (2) from 6 to 20 parts by weight of an amino-triazine having at least one primary amino group, (3) from 30 to 60 parts by weight of an aldehyde component, and (4) from 8 to 35 parts by weight of an ethanol having the general formula



wherein X is a member of the group consisting of H and OH and Y is a member of the group consisting of OH, lower alkyl, lower hydroxy alkyl and lower hydroxy alkyl ether radicals, Y being a member of the group consisting of OH and lower hydroxy alkyl ether radicals when X is H, and being a member of the group consisting of lower alkyl and lower hydroxy alkyl radicals when X is OH.

U.S. *2,524,309 — Antifoamers for Proteinaceous Solutions.* Bernard B. Coyne, Seattle, Wash., assignor to American Marietta Co., Seattle, Wash. Filed November 12, 1947 — Issued October 3, 1950.

A composition for abating foam in proteinaceous dispersions and suspensions of adhesives, consisting of a dispersed mixture of an alkaline earth stearate, pine oil, and a petroleum distillate having a boiling point between that of gasoline and SAE No. 30 lubricating oil; in which mixture the stearate constitutes from about 1.0% to 12.0% by weight of the mixture, and the remainder of said mixture comprises pine oil and petroleum distillate in the ratio of at 1:1 to 7:1.

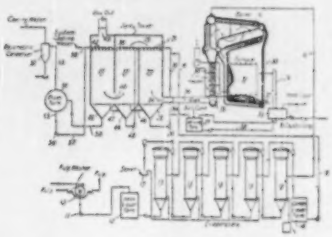
U.S. *2,524,441 — Carton.* Reynolds Guyer, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn. Filed July 31, 1946—Issued October 3, 1950.

A carton comprising a series of side walls foldably connected together, two opposed side walls being formed of two panels extending throughout their width in surface contacting relation and adhered together throughout their length, each of said panels having an end flap thereon connected thereto along registering fold lines, said flaps on said panels being adhered in surface contacting relation, said flaps being arranged in coplanar relationship, and closing flaps on the remaining side walls folded over said first mentioned closing flaps and adhered thereto to form a carton closure.

U.S. *2,524,625—Method of Making Shaped Synthetic Products.* Nicolas Drisch and Rene Fays, Paris, France, assignors to Comptoir des Textiles Artificiels. Filed February 23, 1946—Issued October 3, 1950.

A method of producing from cellulosic material shaped structures which show improved resistance to swelling, which comprises dissolving in a viscose spinning solution a non-resinous slightly condensed polymethylolphenol reagent capable of forming resiniform bridge linkages between cellulose chains and consisting essentially of a trimethylolphenol, extruding said spinning solution in the shape of the desired structure in an acid bath which co-precipitates both the cellulosic substance and the polymethylolphenol from said spinning solution, and subjecting the structures to finishing treatment which includes thermal treatment to produce a resinification of the bridge linkages between the cellulose chains by the reaction of the hydroxyl groups of the cellulosic material with the polymethylolphenol.

U.S. 2,524,753—Method of Recovering Heat and Suspended Chemical Particles from Gases Resulting from the Combustion of a Pulp Residual Liquor and Apparatus Therefor. Joseph L. Betts, Mobile, Ala. Filed January 10, 1946 — Issued October 10, 1950.



The process of continuously recovering low temperature potential heat from the gaseous products of combustion resulting from the burning of a pulp residual liquor which comprises passing said combustion gases through at least one gas cooling zone in direct contact with a sprayed liquid cooling medium, collecting the heated cooling medium with the moisture condensed from said gas and subjecting it to the evaporative cooling effect of subatmospheric pressure, condensing the vapor resulting from the subatmospheric evaporation of said heated cooling medium by heat exchange with a cooling water, and returning the cooled residue of said liquid cooling medium to the gas cooling zone for reuse as a cooling spray and withdrawing the cooling water heated in condensing said vapor.

Canadian

Can. *468,269 — Coating Machines.* Harry Whitney Osgood, Jr., and Alexander Jones, Westbrook, Maine, U.S.A., assignors to S. D. Warren Company, Boston, Massachusetts, U.S.A. Filed July 3, 1947—Issued September 19, 1950.

Apparatus for coating sheet material comprising a member having a sheet supporting surface adapted to be moved in a predetermined closed path, means carried by said member for gripping a sheet to be coated at one predetermined point in said path and for releasing said sheet at another predetermined point in said path, means positioned between said two points in said path for applying coating material to a sheet carried on said supporting surface, means between said two points in said path for smoothing coating on a sheet carried on said surface, means for automatically actuating said means for gripping and releasing the sheet to be coated and means for automatically moving said coating-applying means in coating applying position and for retracting said coating applying means after the movement of a predetermined portion of said surface past said coating applying means.

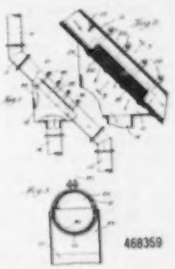
Can. *468,272 — Resinous Products.* Fritz J. Nagel, Pittsburgh, Pennsylvania, U.S.A., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pennsylvania, U.S.A. Filed April 18, 1947—Issued September 19, 1950.

In the process of preparing resinous laminates, the steps comprising applying to a fibrous sheet material (A) the thermosetting partial reaction product derived by simultaneously reacting one mole of a phenol, from 0.1 to 0.6 moles of a secondary diaryl monoamine and sufficient formaldehyde to provide from 0.8 to 1.5 moles for each mole of the phenol and diarylmonoamine, and (B) the thermosetting partial reaction product of one mole of phenol, from 0.3 to 1.1 moles of a primary monoarylamine, and sufficient formaldehyde to provide from 0.8 to 1.5 moles for each mole of phenol and 0.8 to 2.5 moles for each mole of the monoarylamine, the weight ratio of the reaction products ranging from 1 to 10 for (A) to 10 to 1 for (B).

Can. *468,350—Lamp-Bulb Merchandising Packages.* Ray T. White, Rocky River, Ohio, U.S.A., assignor to The Hankins Container Company, Cleveland, Ohio, U.S.A. Filed October 7, 1948—Issued September 26, 1950.

A wrapper package for two electric light lamps, comprising a tube having side walls and open ends and being made from single faced corrugated paper, with the corrugations extending transversely around the inside surface of the tube, and a hinged flap cut from one of the side walls, the said hinged flap being designed to be flexed inwardly to serve as a protective, separating pad between lamps in the package.

Can. *468,359 — Dewatering Apparatus.* Harold A. Skinner, Wausau, Wisconsin, U.S.A., assignor to Marathon Corporation, Rothschild, Wisconsin, U.S.A. Filed February 11, 1949—Issued September 26, 1950.



In a pulp stock line, a stationary, substantially vertically positioned pipe for feeding a light consistency paper pulp stock, a stationary inclined pipe positioned at an angle with respect to said vertically positioned pipe and connected thereto at the lower end thereof, a substantial portion of the lower circumference of said inclined pipe being cut away and covered with a screen, the edges of said screen being in contiguous, unattached relation with respect to the supporting area of said inclined pipe and means for loosely retaining said screen on said inclined pipe to cause pulsation of said screen.

In a pulp stock line, a stationary vertically positioned pipe for feeding a light consistency paper pulp stock, a stationary inclined pipe positioned at an angle with respect to said vertically positioned pipe and connected thereto at the lower end thereof, a substantial portion of the lower circumference of said inclined pipe being cut away and covered with a screen, the edges of said screen being in contiguous, unattached relation with respect to the supporting area of said inclined pipe and loosely retained thereon by means of spaced straps surrounding said inclined pipe and screen to cause pulsation of the screen and a container enclosing said screen for conducting water passing through said screen.

NORTHERN IMPROVEMENTS

Northern Paper Mills, Green Bay, Wis., has recently ordered a Trim Conveying System, Hood and Vapor Absorption System for their Yankee machine from J. O. Ross Engineering Corp.

Maine-N.H. TAPPI at Waterville

Newest aid to scientific research in the pulp and paper business in Maine is the $750,000 Keyes Science Building of Colby College at Waterville, Maine.

The building, dedicated in ceremonies Friday and Saturday, October 13 and 14, at the College's well known Mayflower Hill campus, was made possible through the generosity of Dr. George G. Averill and the late Mrs. Jennie C. Keyes, widow of Martin L. Keyes.

Martin L. Keyes began as a manufacturer of tubs, pails and small wares at North Gorham (Maine) and founded the Keyes Fibre Co., Waterville, now reported to be the biggest pulp pieplate maker in the country, as well as manufacturers of other pulp products and plastic.

In his dedicatory address, Dean Ernest C. Marriner quoted from the plaque "inventor, manufacturer, devoted friend of science and of the youth who would pursue it." Dr. Marriner further described him as "never having had a day of formal scientific or technological instruction, and that he frequently felt the lack of background which competent scientific instruction would have given him. It was perhaps because he was so keenly aware of this lack in his own personal equipment for life that he often expressed the wish that he might some day be able to help other boys secure the instruction denied him."

Don Hubert, chemist for Hollingsworth & Whitney, and genial guide, and Dr. J. S. Reichert, Peroxygen Products, DuPont Co. take a look at the brightness of the lap pulp being loaded in the box car at the Madison, Maine mill. This lap pulp, 68 groundwood, was bleached approximately to 58 or 59 degrees brightness.

The Friday afternoon session was conducted by Dr. J. S. Reichert, manager, Peroxygen Products Development, E. I. du Pont de Nemours & Co., Niagara Falls, N. Y.; George V. Rittenhouse, Virginia Smelting Co.; and F. R. Sheldon, Buffalo Electro-Chemical Co., Inc. (Research & Development Department).

Leland C. Towne, plant superintendent for Hollingsworth & Whitney, Madison, Maine, seated in a corner of the mill laboratory.

Saturday morning was used for a tour of the groundwood bleaching plant of the Hollingsworth & Whitney Co.'s plant at Madison, Maine. Making the tour a success were John L. Parsons, technical director, Northern Mills (Hollingsworth & Whitney Co.), (first) Robert Nivison, vice-president of the company; Don Hubert, Hollingsworth & Whitney chemist; Ted Kloss, a very obliging host for Hollingsworth & Whitney.

Abstracts of the papers of all three speakers follow:

Groundwood Bleaching with Zinc Hydrosulphite

George V. Rittenhouse

A process for the bleaching of groundwood pulp with zinc hydrosulphite was presented. This application is relatively simple. With the control of certain variables, a prediction of the bleach obtained by using zinc hydrosulphite may be obtained. The recommended procedure is as follows:

Add 1 percent zinc hydrosulphite to the pulp at a temperature of 140°F. with a consistency between 3 percent and 5 percent and a pH between 4.5 and 6.5. The most important step is to give the mixture at least 20 minutes of quiet retention after the zinc hydro is added. A brightness gain of 6 to 8 points can be expected on most varie-

(Continued on page 36)

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Most orders accepted, however, at price prevailing on date of shipment. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$100.00/110.00
Sheets	115.00/

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls	$7.00/$7.25
No. 1 Wrapping Rolls	7.75/ 8.00
Standard Bag	6.75/ 7.00

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd	$1.60	/ —
Wh. No. 1 MG	1.60	/ —
Wh. No. 1½	1.55	/ —
Wh. No. 2	1.45	/ —
Kraft Non-Tar		
White Non-Tar		

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½	$5.90/ —
Unbleached 4½x5	6.05/ —
Bleached 4½x4½	7.10/ —
Bleached 4½x5	9.10/ —
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$5.90/$6.25
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2 ply	$8.95/$9.85

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9¼x9¼	$5.65
Br. Sr. M'tif'd 10x12	4.00
Br. Jr. M'tif'd 9½x9¾	3.50
Wh. Jr. Sel. fold 10x10¾	3.35
Blchd. 7½x11, 24/25 rolls	$6.65/$7.00

Manila, per cwt.

No. 1 Jute Tag sheets*	$16.55/18.55
Reg. Jute M.F. 40-lb., sheets*	15.00/17.00
Wrapping Manila	8.75/ 10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

WORLD WOOD PULP MARKETS

Fourth Quarter Contract Prices, Per Short Air-Dry Ton

Varying freight allowances — Atlantic Ports

	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$75.00/ —	$70.00/ 75.00	†$82.50/ —		
Siderurgo Pulping News	70.00/ —	70.00/ 75.00			
Soda, Bleached	130.00/ —	130.00/ —			
Sulphate, Bleached	128.00/167.50	141.00/ —	*165.00/167.50		Competitive
Sulphate, Unbl'd North'n		110.00/120.00	*135.00/165.00		
Sulphate, Unbl'd South'n	110.00/160.00				
Sulphite, Blchd. (S'ftw'd)	128.00/145.00	135.00/138.00	*160.00/ —		Competitive
Sulphite, Blchd. (H'dw'd)	145.00/ —				
Sulfite, Semi-blchd.	128.00/ —				
Sulphite, Unbleached		117.00/120.00	*138.00/165.00		
Sulphite, Unbl'd (Glassine)		121.00/ —	*142.00/150.00		

* On dock. † Delivered.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$6.60/ —
60-lb. 600 ft. GSI	6.60/ —
35-lb. 800 ft. GSI	7.59/ —
35-lb. 500 ft. GSO	5.70/ —

Boards, per ton—

Filled News	$97.50/ —
Plain Chip	95.00/ —
Blchd. Mla. L-d. Chip	120.00/125.00
White Pat. coated .020	145.00/155.00
Kraft Liners 42 lb.	112.50/115.00
Kraft Corr. .009	117.50/126.00
Binders Boards	135.00/ —

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$64.55/$69.60
100% Rag	56.95/ 57.30
75% Rag	43.70/ 44.15
50% Rag	35.60/ 35.95
25% Rag	29.75/ 30.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$65.15/$66.35
100% Rag	58.20/ 58.75
75% Rag	44.95/ 46.20
50% Rag	36.95/ 37.30
25% Rag	31.00/ 31.35

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$18.15/$19.05
Plain	17.10/ 17.45

Ledgers	4 Ctns.
	per cwt.
Watermarked	$19.50/$20.30
Plain	18.55/ 18.75

White Book

Conversion Coated	Case
	per cwt.
No. 1	$21.65/$21.75
No. 2	20.15/ 20.40
No. 3	19.65/ —
Machine Coated	
No. 1	$16.90/ 17.15
No. 2	14.90/ 15.15
Uncoated	
No. 1 Antique (Watermarked)	$17.15/ 18.65
Offset	16.15/ 16.90
A Grade E. F.	16.15/ —
A Grade S. C.	16.65/ 16.90
B Grade E. F.	15.40/ —
B Grade S. C.	16.15/ —

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) ALL PRICES NOMINAL. SPOT OFFERINGS OR SPECIAL PACKINGS NOT INCLUDED.

	New York	Philadelphia	Boston	Chicago
	Oct. 11	Oct. 13	Oct. 21	Oct. 23
No. 1 Mixed Paper	$23.00/ 27.00	$24.00/ 25.00	$22.00/ —	$27.00/ —
Boxboard Cuts	23.00/ 25.00	20.00/ 25.00	19.00/ —	26.00/ —
Mill Wrappers	22.00/ 29.00	25.00/ 30.00	24.00/ 29.00	24.00/ —
No. 1 News	26.00/ 30.00	25.00/ 30.00	26.00/ —	30.00/ —
Over-issue News	29.00/ 32.00	20.00/ —	25.00/ 27.00	30.00/ —
Corrugated Containers	35.00/ 37.00	32.00/ 36.00	33.00/ 35.00	38.00/ —
New Corrugated Cuts	40.00/ 45.00	35.00/ 40.00	35.00/ 40.00	45.00/ —
Double Kraft Ld. Corr. Cuts	75.00/ 80.00	55.00/ 58.00	70.00/ 80.00	77.50/ —*
100% Kraft Corr. Cuts	85.00/ 90.00	—/ —	—/ —	95.00/ —
Used Kraft Bags	60.00/ 75.00	60.00/ —	50.00/ —	55.00/ —
No. 1 Brown Kraft Paper	55.00/ 60.00	65.00/ —	50.00/ 60.00	55.00/ —
Super Resorted Br. Kraft	62.50/ 70.00	80.00/ —	65.00/ 70.00	65.00/ —
New Br. Kraft Env. Cuts	110.00/125.00	100.00/ —	110.00/115.00	90.00/ —
New Br. Kraft Cuts	80.00/ 90.00	100.00/ —	85.00/ 90.00	85.00/ —
No. 1 Gdwd Shvs.	60.00/ 65.00	40.00/ 45.00	60.00/ —	40.00/ —
White Newsblanks	85.00/100.00	75.00/ —	80.00/ —	70.00/ —
No. 1 Flyleaf Shvs.	70.00/ 75.00	55.00/ —	65.00/ 75.00	80.00/ —
No. 1 Soft Wht. Shvs.	150.00/160.00	120.00/125.00	110.00/115.00	125.00/ —
Super Soft Wht. Shvs.	160.00/170.00	135.00/ —	115.00/125.00	135.00/ —
Hd. Wht. Shvs.	160.00/170.00	140.00/150.00	125.00/140.00	140.00/ —
Hd. Wht. Env. Cuts	175.00/ —	160.00/170.00	140.00/170.00	150.00/ —
New Manila Env. Cuts	100.00/120.00	100.00/ —	90.00/100.00	90.00/ —
Col. Tab Cards	70.00/ 80.00	70.00/ —	55.00/ 60.00	70.00/ —
Manila Tab Cards	115.00/130.00	125.00/ —	100.00/110.00	110.00/ —
No. 1 Mixed Ledger	60.00/ 70.00	65.00/ —	60.00/ —	70.00/ —
White Ledger	90.00/100.00	95.00/100.00	70.00/ 80.00	100.00/ —
No. 1 Book & Mag.†	32.00/ 33.00	25.00/ 35.00	30.00/ 35.00	28.00/ —
No. 1 Rep'd. Hvy. Books‡	45.00/ 50.00	33.00/ 45.00	40.00/ 50.00	45.00/ —

* Delivered. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
(Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

No. 1 White Shirts	$17.00/$18.00
No. 1 Unblchd. Muslins	15.50/ 17.50
Blchd. Canton Flannels	15.00/ 16.00
No. 1 Lt. Silesias	10.00/ 11.00
No. 1 Lt. Prints	7.50/ 8.50
Wht. Bt. Blue Overalls (Blchable)	11.00/ 12.00
No. 1 Blue Overalls	5.00/ 5.25
Fancy Shirts	6.00/ 6.50
No. 1 Washables	5.00/ 5.50
Suntan Khaki Cuts	9.00/ —
Mixed Khaki Cuts	6.00/ 7.00
Corduroy Cuts	4.50/ 5.00
Cottonades	4.50/ 5.00
Blchd. Underwear Cuts	16.00/ 17.00
Unblchd. Underwear Cuts	15.00/ 16.00

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

	Per 100 lbs.
Mixed White	$4.50/$5.00
Cotton Pants & Overalls	3.75/ 4.25
Thirds and Blues, Repacked	3.50/ 3.75
No. 1 Roofing Rags	2.40/ 2.65
No. 2 Roofing Rags	2.00/ 2.25
No. 3 & 4 Roofing Rags	1.90/ 2.15
Roofing Bagging	1.90/ 2.15

New Foreign Cotton Cuttings
(Prices to Mills, F.o.b. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$4.25/$4.75
New Mixed Cuttings	4.50/ 5.00
Light Silesias	7.50/ 8.00
Light Flannelettes	7.50/ 8.00
New White Cuttings	nominal
New Unbleached Cuttings	nominal

Fancy Shirt Cuttings	6.00/ 7.00
Light Prints	6.00/ 7.00
Merchable Khaki, No. 1	5.50/ 6.00
Unbl. Khaki, No. 1	4.90/ 5.00

Old Foreign Rags

(Prices to Mills, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	$6.50/$7.50
No. 2 White Cottons	5.50/ 6.00
No. 3 White Cottons	4.00/ 4.50
No. 4 White Cottons	3.50/ 3.75
Extra Light Prints	4.50/ 5.00
Old Light Prints	4.00/ 4.25
Med. Light Prints	3.50/ 3.75
Dutch Blue Cottons	3.75/ 4.00
Checks and Blue	3.00/ 3.50
Linsey Garments	2.75/ 3.00
Dark Cottons, European	2.25/ 2.50
Dark Cottons, Egyptian	2.15/ 2.30
Old Shopperies	2.10/ 2.25
New Shopperies	2.25/ 2.50

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$7.00/$8.00
Domestic Gunny, No. 1	7.00/ 8.00
Heavy Wool Tares	6.75/ 7.50
Foreign Manila Rope	4.25/ 4.50
Domestic Manila Rope	5.25/ 5.50
Jute Strings	6.25/ 6.50
No. 1 Sisal Strings	3.50/ 4.25
Mixed Strings	nominal
Paper Mill Tares	5.25/ 5.75
No. 1 Scrap Burlap	
Foreign	4.75/ 6.00
Domestic	5.50/ 6.50
Austr. Wool Pouches	6.75/ 7.50
New Burlap Cuttings	7.00/ 7.50

MATERIALS

Aluminum, sulfate:
- coml. bags, wks. cwt. 1.65
- iron-free c.l. 2.75

Alcohol, ethyl:
- tax free, dms. c.l. gal. .62 / .97
- deld. East Miss.

Alcohol, methyl:
- Synthetic, Zone 1, dms.
- c.l. fit. alld. gal. .41

Casein, acid-prec.:
- dom. sh. pt. c.l. lb. .36 / .38
- imp. ex dock lb. .33 / .33½

Caustic soda:
- c.l. wks. solid, 76%, cwt. 3.35
- flak. & grd. 100-lb. drums 3.75
- liquid 50% tanks 2.55
- liquid 70% tanks 2.65

China clay:
- dom. air-float. filler, c.l. wks. ton 10.00
- water-washed 11.00
- coating 16.00 /30.00
- imported, ex whse...short ton 15.20 /28.35

Chlorine:
- single-unit tanks, works..cwt. 2.70
- multi-unit cwt. 3.20 / 4.40

Formaldehyde:
- USP, inh. dms, c.l. wks. lb. .0600/ .0625
- l.c.l. E. wks .0650/ .0675

Fuel oil:
- Bunker C, No. 6 Cal. hvy
- tanks, refinery bbl. 1.55 / 1.60
- light bbl. 2.05 / 2.10

Hydrogen peroxide:
- USP, 35% cbys. E. of Miss. lb. .24½/ .25½

Lime:
- hydrated, bags, wks. Buffalo ton 13.50

Rosin:
- B gum, drms, c.l. Savan..cwt. 4.10
- G. do. cwt. 7.13
- H, I, K cwt. 7.20
- FF wood, do. cwt. 5.90

Rosin size:
- 70%, gum & pale grds, tank cars, south, sh. pt. cwt. 6.25 / 6.45

Salt cake:
- dom. bulk, c.l. wks. ton 17.00
- wks. frt. all. ton 20.00 /22.00

Soda ash:
- light, 58%, bags, wks. 1.50
- bulk cwt. 1.20

Sodium silicate 40°:
- turbid, c.l. wks. cwt. 1.20
- l.c.l. wks. 1.55 / 1.95

Sodium peroxide:
- dms. c.l. E. of Miss. lb. .19
- l.c.l. do. lb. .19½/ .20

Soybean, protein:
- chem. isol, wks. c.l. lb. .24 / —
- Cinn. and Chic.

Sulfuric acid:
- 60° Be. cbys. cl. wks. cwt. 1.75 / —
- l.c.l. wks. cwt. 2.05 / 2.60

Sulfur:
- crude, c.l. mines, contract, long ton 18.00 /22.00
- f.o.b. vessels Gulf. 19.50 /23.50
- Export, f.o.b. Gulf. 22.00 /25.00

Sulfur dioxide:
- liquid, coml. cyl. wks. lb. .09
- multi-unit cars lb. .0535

Starches:
- pearl corn, bags, c.l. Chic. cwt. 5.47 / —
- white dextrines, c.l. Chic. cwt. 6.74 / —
- potato, Idaho, c.l. wks. cwt. 5.00 / —
- potato, Maine, c.l. wks. cwt. 5.00 / —
- tapioca, conv. dextrines cwt. 6.75 / 7.25
- medium grds. Gulf and East Coast ports 5.50 / 6.25
- low, Siam, on dock N. Y. 4.75 / 5.25

Talc:
- domestic, 50-lb. sacks, c.l. wks. ton 25.00 /30.00

Titanium dioxide:
- anastase, c.l. deld., bags. lb. .19½
- l.c.l. deld. lb. .20 / .20½
- rutile, c.l. deld. lb. .21½
- l.c.l. deld. lb. .22½

N.B.: For special market conditions see *Trends*.

IMPORTS

IMPORTS AT NEW YORK

Week Ending Oct. 28

Newsprint

R. O. Olsen, G.T.D., Donnacona, 344 rolls.
R. A. Olsen, Newscarrier, Donnacona, 381 rolls.
Gilman Paper Co., Mathilda Thorden, Hallstavik, 207 rolls.

Wrapping Paper

Paper Corp. of U.S., American Builder, Glasgow, 99 rolls.
Paper Corp. of U.S., City of Coventry, Glasgow, 26 rolls.

Note Paper

(———), Britannic, Liverpool, 12 cs.

Crepe Paper

Brumlage Merchandise Co., N. Amsterdam, Rotterdam, 30 cs.

Writing Paper

R. Stone Co., Havmann, Hamburg, 27 cs.
R. W. Robinson & Co., Ile de France, Havre, 2 cs.
Hutzler Bros., Ile de France, Havre, 1 cs.

Filter Paper

J. Manheimer, American Inventor, Bordeaux, 100 bls.
H. Reeve Angel & Co. Inc., American Scientist, London, 22 cs.

Parchment

Intermaritime Forwarding Co., Caronia, Southampton, 1 cs.

Photo Paper

Alco Photo Supply Corp., Caronia, Southampton, 11 cs.

Drawing Paper

H. Reeve Angel & Co. Inc., American Scientist, London, 3 cs.

Wallpaper

W. H. S. Lloyd & Co., American Scientist, London, 5 cs, 18 bls.
C. A. Haynes & Co., American Scientist, London, 24 bls.

Cardboard

Elof Hansson, Inc., Gripsholm, Gothenburg, 31 bls.
Intramar Shipping Co., American Lawyer, Rottermdam, 75 cs.

Kraft Paper

Philipps Paper Products, Mathilda Thorden, Gothenburg, 116 rolls.

Paper Napkins

Freund Mayer Co., Mathila Thoden, Copenhagen, 45 ctns.

Miscellaneous Paper

Parsons & Whittemore, Inc., N. Amsterdam, 1 bls.
Stevens Nelson Paper Corp., Flying Cloud, Yokohama, 2 cs.
(———), American Scientist, London, 4 cs.

Rags, Baggins, Etc.

(———), American Builder, Glasgow, 110 bls, bagging.
Chase National Bank, American Builder, Glasgow, 70 bls. paperstock.
A. W. Fenton Co., Havman, Antwerp, 88 bls. rags.
A. de Vries Trading Corp., Havmann, Antwerp, 111 bls. scrap bagging.
D. Benedetto, Havmann, Antwerp, 49 bls. rags.
(———), Havmann, Antwerp, 62 bls. jute rags.
Midwest Waste Materials Co., Havman, Antwerp, 28 bls. scrap bagging, 353 bls. rags.
Castle & Overton, Inc., Havmann, Antwerp, 20 bls. khaki cuttings.
L. Gottlieb, Havmann, Rotterdam, 97 bls. rags.
Dolphin Jute Mills, American Jurist, Antwerp, 100 bls. paperstock.
E. J. Keller Co. Inc., Aggtedyk, Roterdam, 53 bls. jute bagging.
(———), Exeter, Marseilles, 34 bls. rags.
(———), Exeter, Marseilles, 74 bls. rags.
A. de Vries Trading Corp., Exeter, Marseilles, 110 bls. scrap bagging.
Loumar Textile By Products, Exeter, Marseilles, 163 bls. rags.
Bankers Trust Co., Exemplar, Leghorn, 135 bls. rags.
(———), Exemplar, Genoa, 335 bls. hemp rags.
1st National Bank of Boston, Excellency, Venice, 104 bls. old rags.
Chemical Bank Trust Co., Excellency, Leghorn, 50 bls. rags.
D. Benedetto, Excellency, Genoa, 240 bls. rags.
(———), City of Coventry, Glasgow, 68 bls. bagging.
E. J. Keller Co. Inc., City of Coventry, Glasgow, 134 bls. paperstock.
National City Bank, American Scientist, London, 70 bls. sisal strings.
Merchants Bank, American Scientist, London, 12 bls. rags, 14 bls. cuttings.
Harris Goldman Co., American Scientist, London, 58 bls. old bagging.
J. Eisenberg & Son, Inc., Oriente, Havana, 26 bls. rags.
Spector Woodstock Co., Mathilda Thorden, Gothenburg, 76 bls. rags.
Bankers Trust Co., Exchester, Leghorn, 180 lbs. old rags.

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15 WEST 47th STREET **NEW YORK 19, N. Y.**

E. J. Keller Co. Inc., Exchester, Istanbul, 491 bls. old cotton rags.

A. de Vries Trading Corp., Granville, Antwerp, 226 bls. bagging, 195 bls. scrap bagging.

D. Benedetto, Granville, Antwerp, 81 bls. rags.

(———), Granville, Rotterdam, 80 bls. cotton rags, 117 bls. bagging, 40 bls. cotton waste, 130 bls. paperstock.

National City Bank, Granville, Rotterdam, 124 bls. old bagging.

H. S. Dorf, Granville, Rotterdam, 20 bls. rags.

Texo Co., Granville, Hamburg, 126 bls. bagging.

Gluestock, Etc.

J. Gorvers, Santa Elisa, Guayaquil, 55 bags gluestock.

National City Bank, Chastine Maersk, Iloilo, 179 bdls. hidecuttings.

Casein

Industrial Raw Materials Corp., Granville, Rotterdam, 1794 bags.

The Borden Co., Chemical Division, Mormacsea, Buenos Aires, 500 bags.

Crawford Co., Bowplate, Buenos Aires, 1000 bags.

E. Lang, Bowplate, Bowplate, Buenos Aires, 500 bags.

Crawford Co., Argentina, Buenos Aires, 1200 bags.

New York Trust Co., Argentina, Buenos Aires, 1000 bags.

E. Lang, Argentina, Buenos Aires, 1000 bags.

American Cyanamid Co., Argentina, Buenos Aires, 1500 bags.

Tupman Thurlow Co., Argentina, Buenos Aires, 1000 bags.

The Borden Co., Chemical Division, Argentina, Buenos Aires, 1940 bags.

The Borden Co., Chemical Division, City of Worcester, Auckland, 400 bags (lactic).

Industrial Raw Materials Corp., City of Worcester, Auckland, 548 bags.

Woodpulp

Perkins Goodwin & Co., Gripsholm, Gothenburg, 378 bls. woodpulp.

Woodpulp Boards

Parsons & Whittemore, Inc., Gripsholm, Gothenburg, 327 bls.

IMPORTS AT NEWARK

Week Ending Oct. 28

Pagel Horton & Co. Inc., Mathilda Thorden, Hallstavik, 3302 bls. woodpulp.

Elof Hansson, Inc., Mathilda Thorden, Fagervik, 1350 bls. woodpulp.

Pagel Horton & Co., Inc., Mathilda Thorden, Ornskoldsvik, 2438 bls. dry bleached sulphite pulp.

IMPORTS AT BALTIMORE

Week Ending Oct. 28

L. Gottlieb, Havmann, Rotterdam, 332 bls. rags.

Marine Midland Trust Co., Bowplate, Buenos Aires, 194 bls. gluestock.

S. George, Granville, Antwerp, 100 coils old rope.

(———), Exchester, Leghorn, 70 bls. dark cotton rags.

(———), Mathilda Thorden, Gothenburg, 75 bls. rags.

Pagel Horton & Co. Inc., Mathilda Thorden, Ornskoldsvik, 323 bls. dry bleached sulphate pulp.

Gottestman & Co., Inc., S.S. Kragelsdm, Gothenburg, Sweden, 234 bls. unbldchd. kraft pulp.

IMPORTS AT NORFOLK

Week Ending Oct. 28

F. P. Gaskell & Co., American Builder, Glasgow, 13 cs. coated paper, 50 cs. paper.

National City Bank, American Builder, Glasgow, 38 bls. paperstock.

(———), American Builder, Glasgow, 112 bls. paperstock.

A. de Vries Trading Corp., Havmann, Antwerp, 281 bls. scrap bagging.

D. Benedetto, Havmann, Rotterdam, 79 bls. scrap bagging.

Security National Bank of Raleigh, Aggtedyk, Rotterdam, 68 rolls newsprint.

A. de Vries Trading Corp., Excellency, Genoa, 98 bls. scrap bagging.

A. de Vries Trading Corp., Granville, Rotterdam, 120 bls. bagging.

A. de Swaan, Granville, Rotterdam, 52 bls. bagging.

IMPORTS AT PHILADELPHIA

Week Ending Oct. 28

Philadelphia Inquirer, Mathilda Thorden, Hallstavik, 486 rolls newsprint.

Pagel Horton & Co., Inc., Mathilda Thorden, Karskar/Geffe, 1118 bls. woodpulp.

Pagel Horton & Co. Inc., Mathilda Thurden, Ornskoldsvik, 5791 bls. dry bleached sulphate pulp.

Manufacturers Trust Co., Mathilda Thorden, Malmo, 221 bls. rags.

D. Galloway, American Builder, Liverpool, 63 bls. jutewaste.

Quaker Lace Co., American Builder, Liverpool, 1 cs. draughting paper.

Castle & Overton, Inc., Havmann, Antwerp, 270 bls. cotton cuttings, 163 bls. fustians, 51 bls. new cuttings.

A. L. Feierman, Havmann, Antwerp, 109 bls. old cord & fustians.

A. de Vries Trading Corp., Havmann, Antwerp, 116 bls. rags.

C. Kurz, Havmann, Antwerp, 390 bls. paperstock.

East Asiatic Co., Bowplate, Buenos Aires, 1000 bags casein.

Bulkley Dunton Co., American Jurist, Rotterdam, 765 bls. dry woodpulp.

E. J. Keller Co. Inc., Aggtedyk, Rotterdam, 44 bls. cotton rags.

(———), Aggtedyk, Rotterdam, 71 bls. new cuttings.

Elof Hansson, Inc., Excellency, Trieste, 2115 bls. woodpulp.

E. J. Keller Co. Inc., American Scientist, London, 27 bls. new cuttings.

Castle & Overton, Inc., Granville, Antwerp, 269 bls. paperstock.

E. J. Keller Co. Inc., Granville, Antwerp, 356 bls. paperstock.

Gottesman & Co., Inc., S.S. Belos, Svano, Sweden, 1,828 bls. unbldchd. sulfite pulp; S.S. Belos, Iggesund, Sweden, 946 bls. blchd. kraft pulp, 249 bls. semi-blchd. kraft pulp, 971 bls. blchd. sulfite pulp.

IMPORTS AT BOSTON

Week Ending Oct. 28

Manufacturers Trust Co., La Sierra, Durban, 500 bags boneglue.

Hartog Rut Co., American Lawyer, Rotterdam, 84 rolls wrapping paper.

H. Meyer & Co. Inc., American Lawyer, Rotterdam, 33 bls. hidecuttings.

NEW MATERIALS

Ready-Mixed Washcoat Primer

DEL Ready-Mixed Washcoat Primer P-3 (for steel and iron) is designed to provide maximum bond for subsequent coatings of most kinds. It passivates the offending film on the steel surface, and tolerates and dissipates such moisture which one finds on steel as condensation or dew, it is stated. Under normal drying conditions, the primer dries in less than one-half hour, and finish coatings may be applied immediately. The most recent development of the DEL Protective Coatings line, the Ready-Mix also is formulated to meet special or routine requirements of the pulp and paper industry.

Lightweight Dockboards

Mageoa Lightweight Dockboards are designed to cut materials handling costs. Of non-sparking magnesium designed like a bridge for structural dependability, the boards feature increased safety, equal strength, and stiffness at one-quarter the weight of steel plate of comparable size and strength.

Mastic Water Repellent

Tremco 101 Mastic is a mastic water repellent which can be sprayed (or brushed) on unglazed masonry surfaces. Available in several colors for industrial or residential use, the coating resembles a plaster coat about 10 times the thickness of paint and which does not have to be painted. Adaptation to limited areas such as copings, cornices, belt courses, sills, etc., obviates the need for costly metal caps, the manufacturer states.

Starch Modifier, HT-44

HT-44 is announced as a new enzyme for the paper industry for modifying starch used in sizings. Developed by specialists in enzymes for the industrial field, the new product is said to be extremely efficient in paper coating processes.

Daylight Fluorescent Ink

Day-Glo Colors are announced as a development which makes high-speed, mechanical printing of daylight fluorescent colors in long printing runs possible. Application of the inks had been restricted to screen process or brushing by hand, limited to relative small runs. The new method permits runs of 100,000 or more through high-speed presses as a result of special "bronzing" powders just introduced. Available in trial quantities in Neon Red and Fire Orange, the bronzing powders will be in large-scale production in 60 to 90 days.

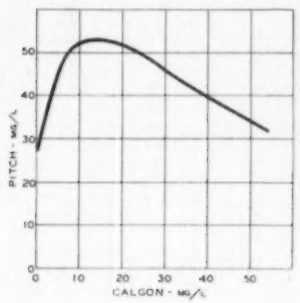
NEW METHODS

Electrap Drainage System

The Electrap Drainage System is designed to reduce pumping costs and improve paper machine drainage. Using two Electraps in place of the usual centrifugal pump and condenser, high pressure steam is admitted to each Electrap during operating cycles to force condensate back to boiler room. The steam used for pumping is then utilized to heat rolls or to improve drainage. Hence the only pumping cost is the electric current used by the solenoid valves which control operation, and a slight radiation loss.

Pitch Control

Calgon, a sodium phosphate glass, is reported to adsorb on the pitch particles and metal surfaces creating similar electrostatic charges which repel the pitch particles from each other and from metal surfaces. The treatment also causes a protective phosphate film to be deposited on the surface of the metallic equipment so that corro-

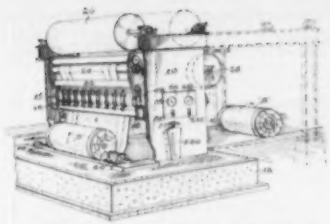


sion of the metal is inhibited, it is said. A pH above 4.8 is recommended for best results. Graph shows effect of Calgon on increasing the quantity of finely dispersed pitch in paper mill white water. As pitch is more finely dispersed, there are fewer aggregates to cause pitch accumulations on screens, etc. Effective concentration of 10-15 parts per million is usually equivalent to ⅔ - 1 pound per ton of pulp.

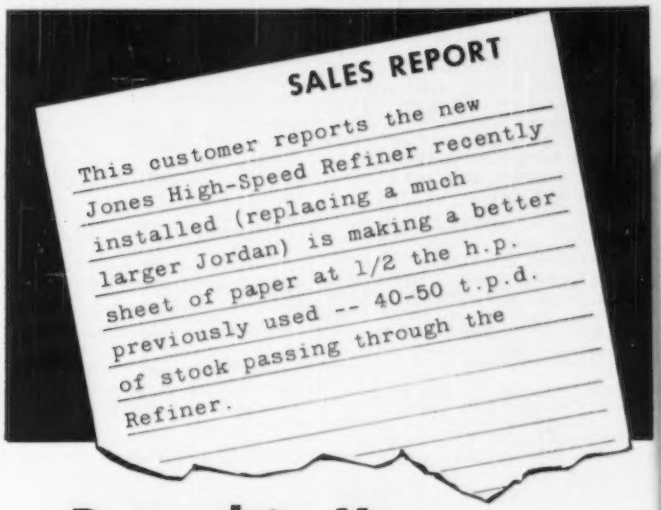
Automatic Roll Wrapper

In answer to a major problem of the industry — the wrapping of newsprint and other large rolls of paper, a roll wrapping machine has been developed. The hand-wrapping method which requires large floor space and involves costly labor has been superseded by the Stadler-Hurter Roll Wrapping Machine. It is estimated by the producer that the machine will do the same work for .03½ to .05c per ton.

Occupying a floor space of 12 feet



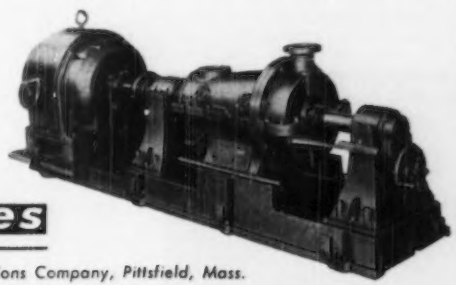
long by 8 feet, fully automatic in operation, the machine will wrap any size of roll from 18" to 84" in length, and from 24" to 44" in diameter. Crimping is done mechanically as roll is wrapped. Production, calculated at one roll of 36" diameter up to 84" long per minute, wrapped with 3-ply 17 point kraft wrapping paper, is given as 1440 rolls per 24 hours. Maximum time required for changing the machine from the smallest to the largest size roll in length and diameter is stated as 3½ minutes. Cycle can be accelerated or reduced to suit requirements by using a reducer of different ratio. By changing the two control cams, the number of wraps can be moved from one to any number up to 15 of lighter wrapping paper. Time required for change, 3 hours. Developed specifically for the paper indus-


SALES REPORT
This customer reports the new Jones High-Speed Refiner recently installed (replacing a much larger Jordan) is making a better sheet of paper at 1/2 the h.p. previously used -- 40-50 t.p.d. of stock passing through the Refiner.

Proved in Use

We've deleted the customer's name: otherwise this is just what the salesman reported. And it is backed up by many similar experiences that prove the Jones High-Speed Refiner is producing results like this, not once but many times.

It can produce them for you. Write for Bulletin EDJ-1011A, or tell us your problem and we'll give you full details.



E.D. Jones

E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

try, the machine has wide application wherever cumbersome roll wrapping is required.

NEW LITERATURE

Virginia Smelting Co. Pamphlet, "SO_2, Liquid Sulfur Dioxide—A Versatile Chemical Reagent for Industry for the Laboratory."

David E. Long Corp. Booklet, "Series 'A' System and Metal Primers." Gives directions for application of protective coatings on all kinds of surfaces.

Troy Engine & Machine Co. Catalog No. GP-50, "Troy Processing Equipment." Describes line of Roller Mills, Colloid Mills and Mixers.

The Dow Chemical Co. Brochure, "The Use of Bromine for Algæ and Slime Control in the Los Angeles Plant, Styrene Division, The Dow Chemical Co." Report of experiments and final results on the addition of bromine to control algæ and slime in water cooling towers.

American Forest Products Industries, Inc. Two Forestry Bibliographies. 1) 16 pp. booklet; lists available booklets, posters, charts, filmstrips and motion pictures dealing with forestry. 2) Lists the many teaching aids provided by individual forest industries, industry associations, state forestry departments.

Monsanto Chemical Co., Merrimac Div. Illustrated Booklet, "Mertone WB-2—A Special Pre-Coat for Blueprint Papers." Outlines properties and application of the product; contains blueprint for installation of slow and highspeed coating machines.

Steel Founders' Society of America. Booklet, 32 pp., price 20c, "Fundamentals of Steel Casting Design." Useful to designer and foundryman alike, it covers discussion of accepted rules of economical and dependable steel casting design, characteristics of the material, elimination of possible defects, improvements through conversion redesign.

U. S. Economic Cooperation Administration. Booklet, "Investment of Foreign Capital in Italy."

Elgin Softener Corp. Bulletin 551, "Elgin Water Treatments." Covers water treatment for every need—explaining why various water troubles occur and how they can be eliminated.

Minneapolis-Honeywell Regulator Co. Instrumentation Data Sheet No. 2.9-5a, "Sheet Moisture Recorder Improves Quality and Costs Losses in Papermaking and Converting." Features electronic Moist-O-Graph.

Associated Factory Mutual Fire Insurance Cos. Loss Prevention Bulletin No. 36.10, "Properties of Flammable Liquids, Gases and Solids." Contains table of more than 650 flammable materials found in industrial plants, giving for each the chemical formula, flash point, explosive limits, auto-ignition temperature, etc., data.

Ajax Flexible Coupling Co., Inc. Bulletin 50, "Ajax Dihedral Couplings." Technical data with diagrammatical sketches.

Sun Oil Co. Illustrated Booklet, "Sunvis H.D. 700 Oils." Describes the functions of these heavy-duty oils in circulating and hydraulic systems, compressors and gear boxes.

Allis-Chalmers Mfg. Co. Bulletin 52B6059G, "Handy Guide to Selection of Centrifugal Pumps." Shows economical pumping units for every industry.

Film Research Associates. Staff Service Bulletin No. 13, "Film Guide for Economic Education." Descriptive catalog of motion pictures and slidefilms covering many phases of the American economic system.

THE H. K. FERGUSON COMPANY

PAPER MILL ENGINEERS & BUILDERS

Complete Service for Design, Construction, Equipment Installation, Engineering Reports and Surveys

Executive Offices
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MAINE-N. H. MEETING

(Continued from page 30)

ties of groundwood pulp. The cost for this process is in the neighborhood of 53 cents per point of brightness gained per ton of pulp treated.

Peroxide Bleaching of Groundwood

J. S. Reichert

In the fall of 1948 we had the privilege of presenting an interim report on "Peroxide Bleaching of Groundwood" at a joint meeting of TAPPI and the Technical Section of the Canadian Pulp and Paper Association at Poland Spring, Maine. The paper presented at this meeting was published in the March 1949 issue of TAPPI Magazine.

Over the past two years peroxide bleaching of groundwood has expanded materially and is now in commercial operation in 24 mills with a total capacity of about 1,250 tons per day. Additional bleacheries are expected to be installed and put into operation in the next year. Most of the bleacheries are being operated in completely integrated pulp and paper mills. However, three bleacheries have started producing peroxide bleached groundwood for delivery to non-integrated paper mills; there is a ready market for the bleached product. Two mills are bleaching mixtures of groundwood and sulfite pulp; under some conditions, e.g., in mills where the entire paper production is one grade or closely allied grades, this procedure has operating advantages. Typical bleaching installations and facilities for handling and applying the bleaching chemicals are described in this paper.

Peroxide bleached groundwood is being used to advantage in the production of a range of papers, i.e., papers in which moderate strength, brightness and color stability, coupled with good opacity, bulk, cleanliness, absorbency and printing properties are desirable. Fields of application include book, magazine, tissue, towelling, napkins, directory, catalog, mimeo, tablet and a number of specialty papers.

Pulp consistency, expressed as pounds of water per pound of stock, plotted against brightness gain obtained in peroxide bleaching, shows approximately a straight line relationship. In the consistency range between 3 percent and 35 percent there is a steady increase in brightness gain as the pulp is thickened to higher consistencies.

The problem of processing groundwood and other pulps at the higher consistencies is being approached from at least two directions. In one direction, new types of equipment are being perfected for dewatering the pulp to a high consistency, for mixing the high consistency pulp with the bleaching solution, and for handling the high consistency pulp in the processing. In another direction progress is being made on applying the bleaching solution to the pulp in sheet form at a high consistency.

In the choice of an installation for peroxide bleaching of groundwood, important factors other than consistency must receive consideration, e.g., production rate, and equipment adaptable to the process already available in the mill.

From the standpoint of consistency, the groundwood bleacheries now in operation classify themselves approximately as follows:

Consistency	Bleaching Capacity Tons/Day	% of Total
Low (4-6%)	470	38
Medium (9-15%)	660	53
High (20-35%)	110	9
Totals	1,250	100

WITH OUR SALES FORCE COVERING FIVE STATES we are in a position to do an excellent job for any mill interested in carload tonnage.

Excellent established contacts in Southern New Jersey, Eastern Pennsylvania, Maryland, District of Columbia and Virginia assure you of an outlet for contract tonnage to converters.

Full investigation of our organization is invited. Write or wire Box No. 50-496, care Paper Trade Journal. N-2

Groundwood Bleaching Variables

F. R. Sheldon

While excellent results and essentially trouble-free operation are being achieved in commercial peroxide bleacheries throughout the nation, occasional periods are encountered when poor wood, bad water, or the like cause a lowering of efficiency. In such instances, detailed knowledge of the relative importance of likely variables is extremely helpful in overcoming the temporary difficulty. The most efficient operation of any groundwood bleachery is dependent upon a thorough, on-the-spot understanding of the salient variables peculiar to the installation in question.

In theory, the peroxide bleaching of groundwood is a simple procedure consisting of blending an alkaline peroxide bleach liquor with the pulp, holding the pulp until maximum brightness is reached and finally neutralizing residual bleach ingredients to a point where the bleached pulp is suitable for paper furnishing.

In practice, bleaching groundwood with peroxide is made slightly more complex by the large number of variables which affect process results. Since groundwood pulp properties other than brightness are substantially unchanged by bleaching or at least less critical than brightness, "results" and brightness increase will be considered as synonymous in the following discussion.

The most variable of all the variables is the pulp itself.

1. Age of the wood before grinding and time elapsed between grinding and bleaching have their effect on bleachability. Old age in both cases generally decreases the expected brightness spring.

2. Equipment variables are, in the main, eliminated by bleach plant design, but since adequate blending of pulp and bleach chemicals is a requisite of any process, it is not amiss to include at least mixing as a point of possible variation.

3. Chemical percentages based on the dry fiber are, of course, variables of prime importance. As is undoubtedly well known, peroxide bleaching is effected with hydrogen or sodium peroxide, alone or together, in alkaline solutions containing sodium silicate and often some magnesium sulfate.

4. Probably the most important single factor in determining brightness gain is the amount of peroxide used. The relationship between brightness response and peroxide percentage is apparently logarithmic, i.e., additional amounts of peroxide resulting in proportionally smaller brightness increments.

5. The total alkalinity at the start of the bleaching process is also quite important.

6. Bleaching density is another variable having a direct bearing on brightness response. With the same amount of peroxide, higher densities produce greater brightness increases.

7. Increased temperatures also shorten bleaching time, but here again the inter-relationships of density, temperature, and total alkalinity require precise control for best results.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER AND PRODUCTION RATIO REPORT

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 23	Sept. 30	Oct. 7	Oct. 14*	Oct. 21
1950	106.8	106.2	105.3	107.5r	107.3
	Sept. 24	**Oct. 1**	**Oct. 8**	**Oct. 15**	**Oct. 22**
1949	*94.9*	*96.7*	*90.5*	*97.1*	*101.1*

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1949	*94.6*	*92.8*	*89.1*	*85.1*	*82.7*	*78.6*	*72.8*	*87.6*	*89.7*	*96.3*	*98.2*	*89.8*	*88.0*
1950	97.6	100.8	101.9	100.5	101.8‡	103.2‡	90.8‡	105.8‡	101.7‡				

* Weekly capacity base increased by 397 tons.
r Revised.
‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1943	1944	1945	1946	1947	1948	1949	1950
Year to Date	88.5	88.3	88.9	101.0	103.9	97.1	87.1	101.3
Year Average	87.8	88.1	89.4	100.1	104.3	96.2	88.0	

PAPERBOARD OPERATING RATIOS†

	Sept. 23	Sept. 30	Oct. 7	Oct. 14	Oct. 21
1950	101	103	100	102	101
	Sept. 24	**Oct. 1**	**Oct. 8**	**Oct. 15**	**Oct. 22**
1949	*91*	*94*	*92*	*94*	*94*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1949	*88*	*85*	*79*	*79*	*78*	*75*	*64*	*86*	*87*	*94*	*93*	*83*	*83*
1950	88	92	91	92	91	94	82	100	96				

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

OBITUARIES

Samuel B. Dudnick, 71, of Norristown, Pa., a Philadelphia paper box manufacturer, died October 20 in Temple University Hospital, Philadelphia, after a short illness.

He is survived by four children, Samuel, Jr., Nathan, Henry, and a daughter, Mrs. Boris Ichelson.

Earl C. Hoffman, 60, Western New York sales representative of the Hinde & Dauch Paper Co., died October 25 at his home in Buffalo, N. Y. He had been employed by the paper firm for 25 years. Surviving are his widow, the former Margaret Milson; a daughter, Mrs. Robert D. Borchard; two sisters, Mrs. Randolph G. Moore and Mrs. Benjamin Bond; and a brother, Charles H. Hoffman.

Julius S. Holl, 64, advertising manager of Link-Belt Co. for almost 40 years, died at the Presbyterian Hospital, Chicago, October 24, after a prolonged illness.

Mr. Holl entered the employ of Link-Belt Co. at a subsidiary, The J. M. Dodge Co., Philadelphia, in 1905, as stenographer and clerk. He was subsequently transferred to the parent company's Philadelphia plant stenographic department and soon became drafting room clerk. He later joined the Link-Belt advertising department and on March 1, 1911, was made advertising manager at Philadelphia, with instructions to move the then small advertising department to Chicago headquarters.

The advertising department of today consists of about 40 people and uses over 200 business and industrial publications to reach the trade. Mr. Holl has done much through the years to popularize Link-Belt and its products, and is well known throughout the advertising profession.

Harry Lyon, president and treasurer of the Harry Lyon Co., Inc., wholesale paper firm, died at his home in Providence, R. I., on October 22. He is survived by his widow, Lena; a son, Joseph; three daughters, Mrs. Max E. Karp, Miss Mary Lyon, and Mrs. Sol Lossef.

William B. Sleigh, 78, formerly manager of the Morgan Envelope Co., died at Springfield, Mass. Mr. Sleigh had been manager at Morgan for 58 years prior to his retirement in 1948.

Albert R. Smith, 85, who became an office boy in 1886 for the Keith Paper Co., Inc., and retired 50 years later as general manager, died at Turners Falls, Mass. on October 20.

CLEARING HOUSE

HELP WANTED

GRADUATE CHEMICAL OR MECHANICAL ENGINEER

For Production Engineering position on Supervisory Staff of Paper Board Mill located in Indiana. Mill is unit of one of leading and nationally recognized paper board, carbon and container manufacturing concerns. Unusual opportunity for aggressive young men to learn production and control methods. Advancement should be rapid, depending only upon the ability of the man to assume responsibility. Inherent supervisory ability important. Prefer man recently graduated from recognized Engineering College. Please give details of background in first letter. Address Box 50-533 care Paper Trade Journal. N-16

MEN WANTED POSITIONS OPEN

We can place—managers and superintendents Cylinder machine roofing felt and roofing paper mill; managers, supts. and asst. supts. for box factories; gen. supt. board and corrugated paper mill; supt. Cylinder machine specialty paper mill; asst. supt. for asbestos cement plant.
Foreman paper converting dept; 2 coating dept. foremen; machine foremen Cylinder and Fourdrinier machines; chemists, chemical engineers and laboratory men; master mechanics, plant engineers, draftsmen and head draftsman and designers; chief power plant engineer; salesman for fine writing papers; cost accountants; beater engineers; machine tenders, back tenders and third hands. Salesman to sell mechanical equipment to pulp and paper mills.

LIST YOUR CONFIDENTIAL APPLICATION WITH US

We will keep you informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.

SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES

N-2

CHEMICAL ENGINEER

Degree not essential. Must have actual experience in research and development work on wood fiber insulation board products. Experience in field of coatings and acoustical products valuable. Unusual opportunity for person with necessary background and experience. Permanent position, with large manufacturing plant in South. Good salary. Only qualified need apply. Replies confidential. Our personnel know of this ad. Address Box 50-532 care Paper Trade Journal. N-23

WHAT A JOB FOR A MASTER MECHANIC. A ONE-MACHINE MILL IN THE EAST PRODUCING FOLDING GRADES OFFERS GOOD SALARY, GOOD FUTURE OPPORTUNITY, PLEASANT SURROUNDINGS AND NICE PEOPLE TO WORK WITH. ONLY SUBSTANTIAL MEN WHO APPRECIATE THE BETTER THINGS IN LIFE NEED APPLY. IN SO DOING, STATE PREVIOUS EXPERIENCE, AGE, EDUCATION AND EXPECTED COMPENSATION. Address Box 50-546 care Paper Trade Journal. N-2

HELP WANTED

CHEMIST

Experienced on Paperboard. Splendid opportunity for advancement, reasonable present compensation. Please write us fully giving complete information as to experience, age, education and expected remuneration. Address Box 50-545 care Paper Trade Journal. N-2

WANTED

Beater Engineers and Back Tenders for one machine mill in East, making folding grades. Must be experienced. Good pay and steady employment. Address Box 50-543 care Paper Trade Journal. N-23

WANTED CHEMICAL ENGINEER OR CHEMIST: Opening in Midwestern Rag Content and Specialty Mill. Control and development work both laboratory and mill scale. Experience in reproduction papers preferred. Our employees know of this ad. Address Box 50-523 care Paper Trade Journal. N-2

ASSISTANT SUPERINTENDENT

We have been looking for an Assistant Superintendent for a long time but haven't found the right man. If you are a young man with a combination of technical training and paper machine experience, this may be the right opportunity for you to get ahead. We will pay what you are worth. Write Box 50-514 care Paper Trade Journal. N-16

WANTED

Experienced Laboratory Technician for 2 machine Mid-Western Mill on Book and Offset grades. Men will be required to work swing shifts in maintaining quality controls of beaters, finished paper, and de-inking plant. Men with leadership ability will have opportunity to advance to Supervisory positions. All replies will be held in strict confidence. Address Box 50-498, care Paper Trade Journal. N-2

PRODUCTION CHIEF

Paper converting, nationally known. Printing, coating, gumming, laminating, finishing operations. Lifetime position for top-flight production executive. Our people know of this ad. Send full details confidentially to President, Box 50-443, care Paper Trade Journal. TF

HELP WANTED

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

TF

WANTED—PROJECT ENGINEER—California. Process Plant Design and Project Engineer. Experience in pulp and paper and building materials plants preferred. Minimum five years experience and engineering degree. Competitive salary depending upon individual qualifications. Address Box 50-548 care Paper Trade Journal. N-16

YOUR BOSS wanted for Board Mill in East. Must have experience on folding grades. Address Box 50-473 care Paper Trade Journal. TF

WANTED — SALES ENGINEER—Experienced in Pulp and Paper Mills, for sales and service work. Excellent opportunity with old established machinery manufacturer. In reply, give resume of education, experience and current salary. Address Box 50-512 care Paper Trade Journal. TF

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 50-378 care Paper Trade Journal. TF

YOUR BOSS—Experienced cylinder machine tender qualified to handle position. Rotating shifts. Mill located in Massachusetts. In reply give all details. Address Box 50-497 care Paper Trade Journal. N-2

SOUTH AMERICA—Machine Tender, under 35, wanted for mill in Peru—both Fourdrinier and cylinder machine experience desirable but not essential—good opportunity for advancement—give experience and family status. Address Box 50-522 care Paper Trade Journal. N-16

WANTED—Chemist or Chemical Engineer for Newsprint & Specialty with one year's experience, preferably Pulp & Paper. Give references, experience, etc. Location Province of Quebec, Canada. Address Box 50-534 care Paper Trade Journal. N-9

DESIGN ENGINEER—Graduate Mechanical Engineer to head development engineering department of large southern pulp and paper mill. Must have sound theoretical background plus several years experience. Address Box 50-531 care Paper Trade Journal. N-2

SITUATIONS WANTED

UNIVERSITY GRADUATE with 18 years experience in the pulp and paper industry as purchasing agent, engineer and executive, desires position with progressive company. Write Box 50-519 care Paper Trade Journal. N-9

RATES FOR CLASSIFIED ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 18, N. Y.

SITUATIONS WANTED

EXPERIENCED KRAFT PULP AND PAPER MILL ENGINEER AND OPERATOR

wants to contact mills.

Cement Sacks, Gumming, Envelopes and other Specialties.

Address Box 50-439 care Paper Trade Journal. D-7

ASSISTANT SUPERINTENDENT or Foreman with 20 years experience in converting specialty papers. Can handle help, get quality and production. Best of references. Address Box 50-530 care Paper Trade Journal. TF

EXECUTIVE ENGINEER experienced in all phases of pulp and paper manufacture with extensive experience in dry creped tissue field, desires position in engineering or management. Address Box 50-515 care Paper Trade Journal. N-2

PLANT MANAGER—Manufacture and conversion of boards and papers; wants change for greater opportunity. Competent and successful in organization; production; and labor relations. Address Box 50-521 care Paper Trade Journal. N-30

SITUATIONS WANTED

PLANT SUPERINTENDENT

Intimate knowledge adjusting all types bag and printing machinery, such as flat & squares, self-opening squares, sacks, satchel-bottom cellophane, roll-cut envelopes, etc. Potdevins, Matadors, Webers, Lockport and many others. Aniline, anilox, letter-press and gravure printing. Electric-eye registration, slitting, sheeting, etc. Many years plant management and personnel training. Engineering education with background of practical experience in machine design and machine-shop management. Seek connection with progressive organization who are in need of a sober, hard working executive with initiative and ability.

Address Box 50-540, Care Paper Trade Journal. N-9

SUPERINTENDENT 25 YEARS PRACTICAL EXPERIENCE manufacturing folding boxboard and high grade light and heavy weight specialties from sulphite, sulphate, groundwood and old paper stock. Aggressive, capable man, good references. Address Box 50-518 care Paper Trade Journal. N-16

SUPERINTENDENT—With a long record as a Practical Paper Maker on Modern High Speed Cylinder Machines, making Boxboards and Specialties. A production man with an engineering background. Address Box 50-529 care Paper Trade Journal. N-9

SITUATIONS WANTED

SUPERINTENDENT—Energetic young man desires to make change. Experienced on Yankee Fourdrinier machines manufacturing facial, towels, toilet tissue and napkins (colored and white). Good, steady conscientious worker. Starting salary $7500 plus moving charges. Address Box 50-538 care Paper Trade Journal.

SALESMAN desires connection with company, preferably with Saturation Papers, Fine and Special Papers, in New England. 20 years varied experience in Paper Business. Address Box 50-539 care Paper Trade Journal. N-2

FOR SALE

1—112" Cameron, Type 18, 60" rewind.

1—3' Shartle Hydrapulper, with motor.

BEATERS

2—E. D. Jones Beaters, 60x68 Beater Rolls.
1—1½ lb. Laboratory Beater.
1—500 lb. Beater—iron tub.
1—Dilts Iron Tub Laboratory Beater. Beater roll 14" diameter x 10¼" face, including motor.

CALENDER STACKS

1—72" 5 roll Calender Stack.
1—2 roll pressure calender—32" x 108".
1—72" 4 roll calender stack. (Extra heavy duty).

CHIPPER

1—96" Murray 4 knife Chipper—anti-friction bearings.

CRUSHER & HAMMERMILL

1—Murray Chip Crusher.
1—Jeffrey Hammermill.

CYLINDER MOLDS

1—30" diameter x 74" face.
1—36" diameter x 79" face.
1—48" diameter x 84" face.
2—36" diameter x 54" face.
1—48" diameter x 117" face.

DECKERS

3—IMPCO 74" face x 30" diameter cylinder mold.

DIGESTERS

2—14 ft. Rotary Digesters.

DRIVES

1—#6½ Reeves Drive.
1—#4 Reeves Drive.
1—#3 Reeves Drive.
1—#5 Reeves drive.
1—Reliance Electric Drive, complete with 5 gear head motors.
2—#3 Reeves Drives (totally enclosed).

V-BELT DRIVE

1—21½" diameter x 7½" face, 5 groove.
1—16½" diameter x 7½" face, 5 groove. (With clutch).

DRYERS

1—Complete unit, consisting of 6 dryers, 36" diameter x 38" face, including frames, gears, anti-friction bearings.
2—42" diameter x 74" face.
7—24" diameter x 48" face.
4—36" diameter x 72½" face, with gears and bearings.
1—48" diameter x 91" face.
1—36" x 143".
1—24" x 130".
3—36" diameter x 96½" face.
1—48" diameter x 70" face.
2—48" diameter x 92" face.
1—48" diameter x 82" face.
23—36" diameter x 70" face—complete with bearings, gears & frames.
2—Dryers 48" diameter x 136" face.

EMBOSSER

1—84" Hudson Sharp Toilet Embosser. Spare engraved roll.

FELT CONDITIONER

1—146" Nash Felt Conditioner.

FLAT SCREENS

1—6 plate Shartle Flat Screen.

FRAMES

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300	Al. Ch.	Syn.	600	
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200	G. E.	S. C.	600	IK
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138	Westgh.	Syn.	450	3 Brg.
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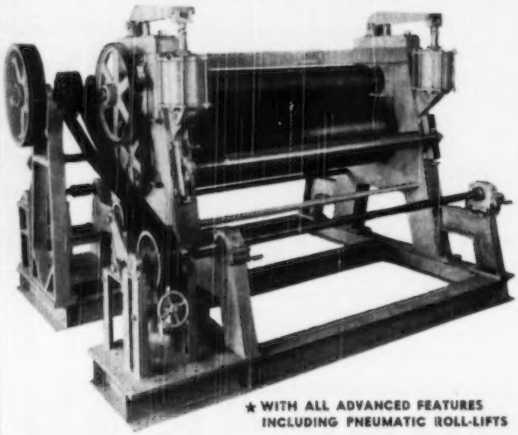

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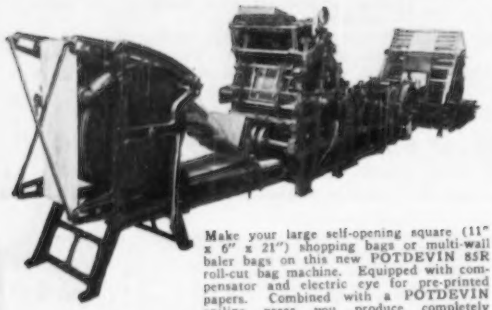

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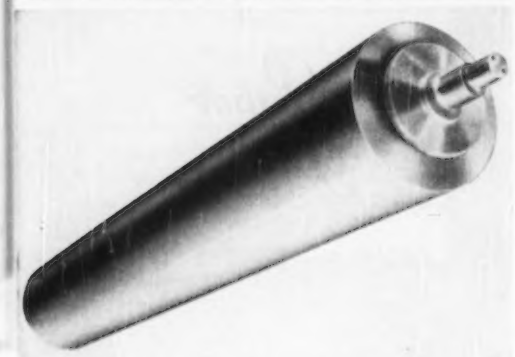

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at a Washington pulp mill

The gracefully-curved modernistic steel plate structures shown in the above view are pulp dump chests at the Weyerhaeuser Timber Company's pulp mill at Longview, Washington. Sulphite waste liquor is used to wash pulp from the digesters into these dump chests.

The four 16-ft. diam. by 71-ft. chests were fabricated at our Chicago plant and erected at Longview by one of our experienced field crews. Each one is supported by two ring girders spaced 37 ft. apart. The base of one girder on each vessel is fixed while the other moves as the shell expands and contracts. Each chest has a 40-in. pipe connection in each end and one 8-in. and one 20-in. nozzle at the top. All of the chests have acid-resisting linings.

These dump chests are typical examples of the steel plate structures we fabricate and erect. Some of our other products include: flat-bottom steel tanks, elevated steel tanks, acid accumulators, digesters, blow tanks, pressure vessels and salt cake tanks. Write our nearest office for estimates the next time you need steel plate structures of any type.

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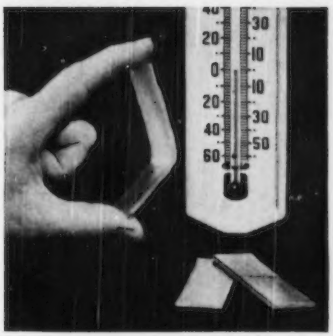
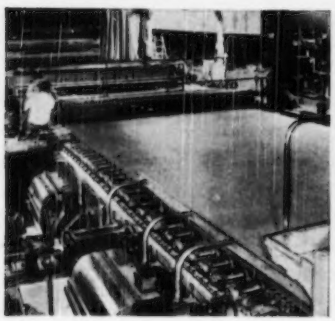
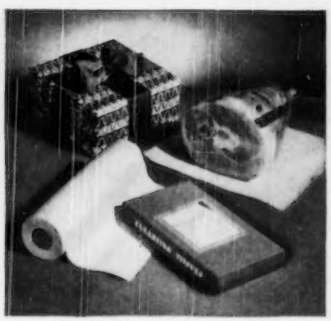


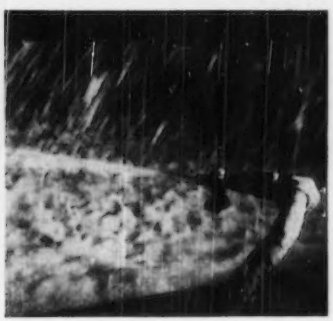
MICROCRYSTALLINE WAXES... Improved S/V Magnowaxes have greater adhesiveness and improved low temperature flexibility. These features insure a durable seal and an effective wax barrier in refrigeration service.



PITCH CONTROL... S/V sovalents reduce difficulties due to pitch. S/V Sovalent 911 attacks pitch in the digester and speeds production. S/V Sovalents 21 and 31 attack pitch on paper machines and reduce downtime.



SPECIALTY PRODUCTS. These include: S/V Prorex Oil P, for oiled papers; S/V Cellusorb A, for toweling, tissues; S/V Ceremuls for vinyl coatings; S/V Antioxidant W, to prevent the development of rancidity in wax baths.



DEFOAMANTS... S/V Foamrexes give complete foam control, at low cost. These Socony-Vacuum products attack the foam instantly. They provide better formation and speed production. They are easily handled and easily applied.

SOCONY-VACUUM
PROCESS PRODUCTS

Process Products
SOCONY VACUUM

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